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LOCKHEED MARTIN

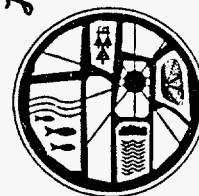


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Worldwide Estimates  
and Bibliography  
of Net Primary Productivity  
Derived from  
Pre-1982 Publications

G. Esser  
H. F. H. Lieth  
J. M. O. Scurlock  
R. J. Olson

MASTER



MANAGED AND OPERATED BY  
LOCKHEED MARTIN ENERGY RESEARCH CORPORATION  
FOR THE UNITED STATES  
DEPARTMENT OF ENERGY

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**Environmental Sciences Division**

**WORLDWIDE ESTIMATES AND BIBLIOGRAPHY  
OF NET PRIMARY PRODUCTIVITY  
DERIVED FROM PRE-1982 PUBLICATIONS\***

G. Esser  
Institute for Plant Ecology  
Justus-Liebig-University  
Heinrich-Buff-Ring 38  
D-35292 Giessen  
Germany

H. F. H. Lieth  
Systems Research Group  
University of Osnabrück  
Artilleriestrasse 34  
D-49076 Osnabrück  
Germany

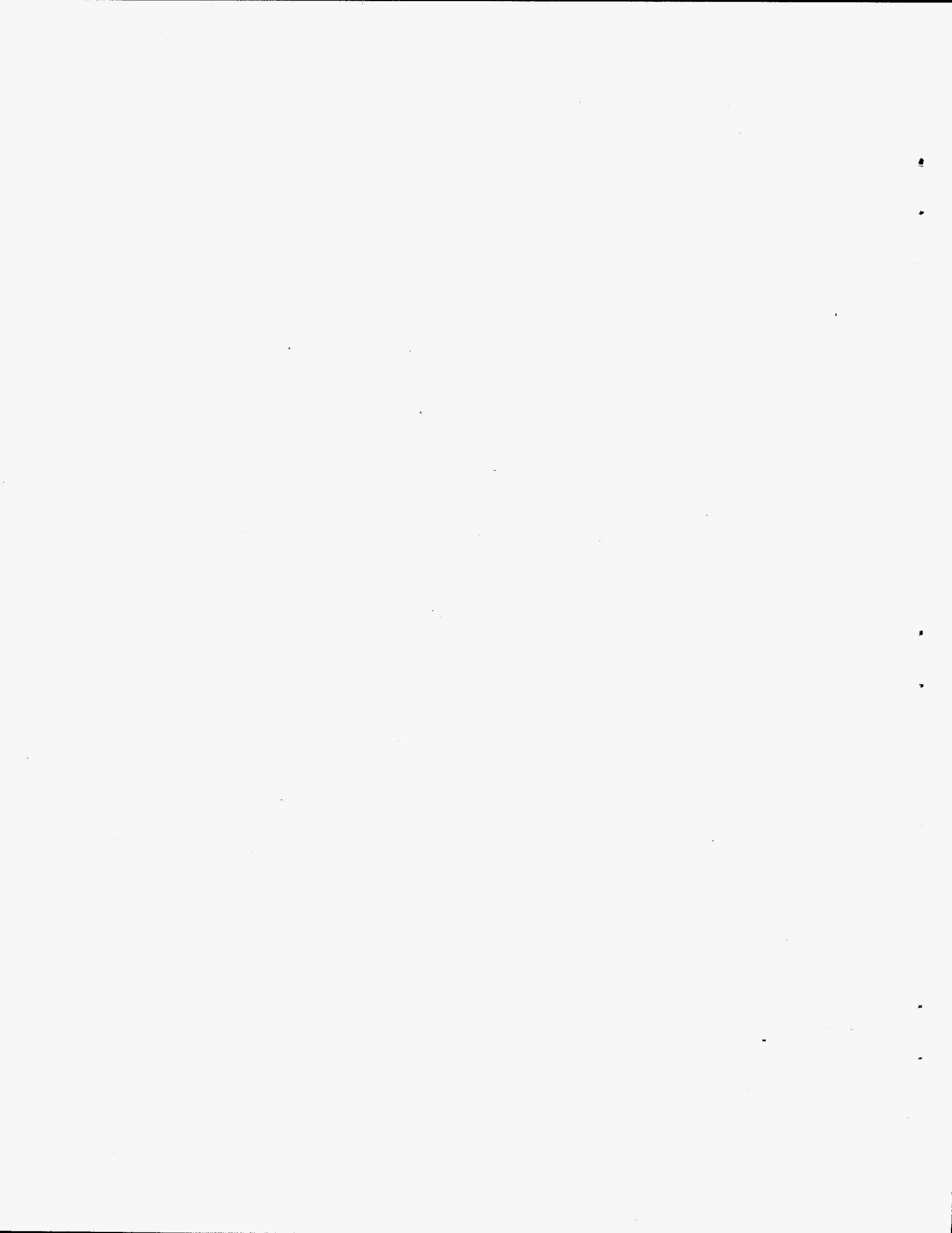
J. M. O. Scurlock and R. J. Olson  
ORNL Distributed Active Archive Center  
Environmental Sciences Division  
Oak Ridge National Laboratory  
P.O. Box 2008  
Oak Ridge, TN 37831-6407  
U.S.A.

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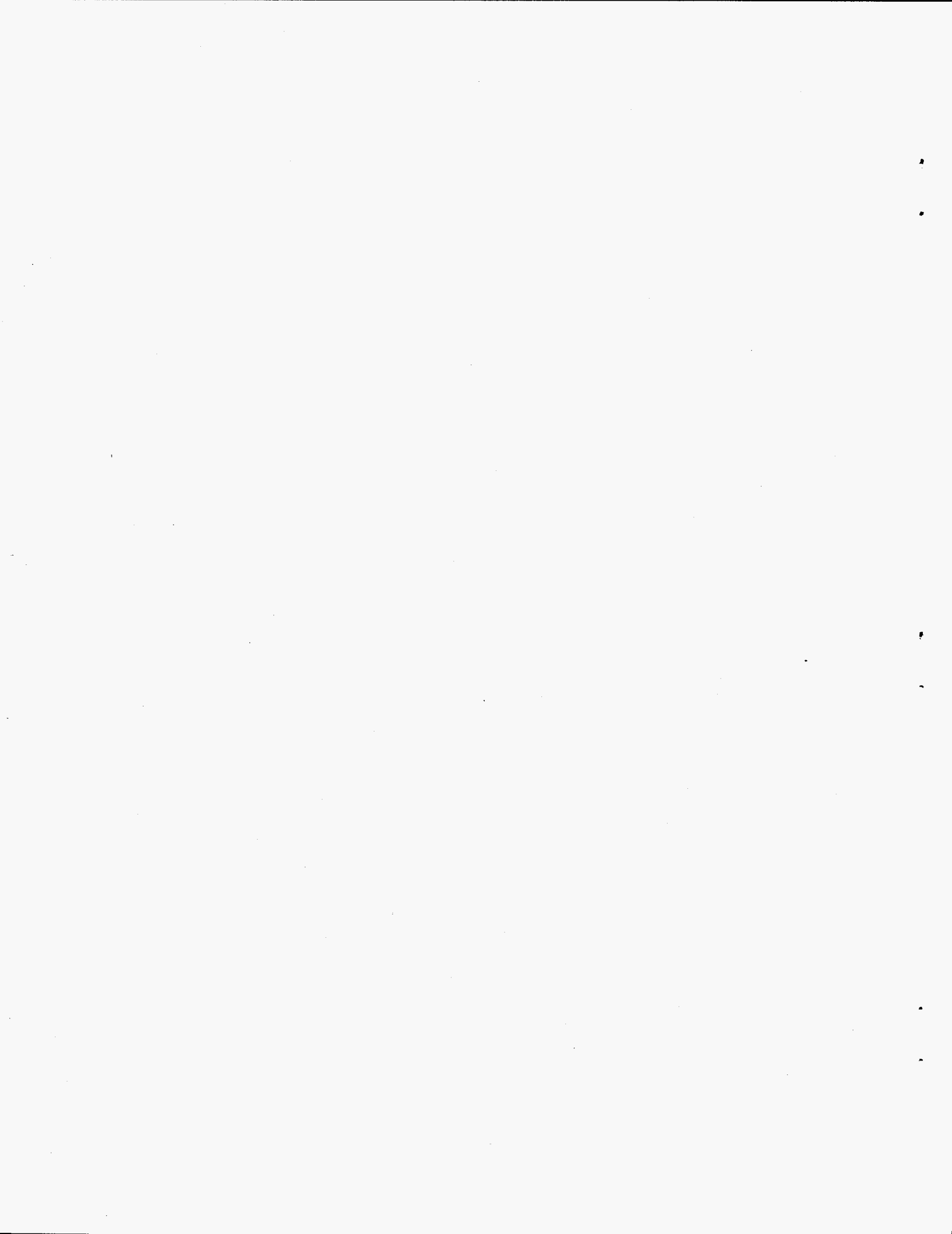
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Prepared by  
OAK RIDGE NATIONAL LABORATORY  
managed by  
LOCKHEED MARTIN ENERGY RESEARCH CORP.  
for the  
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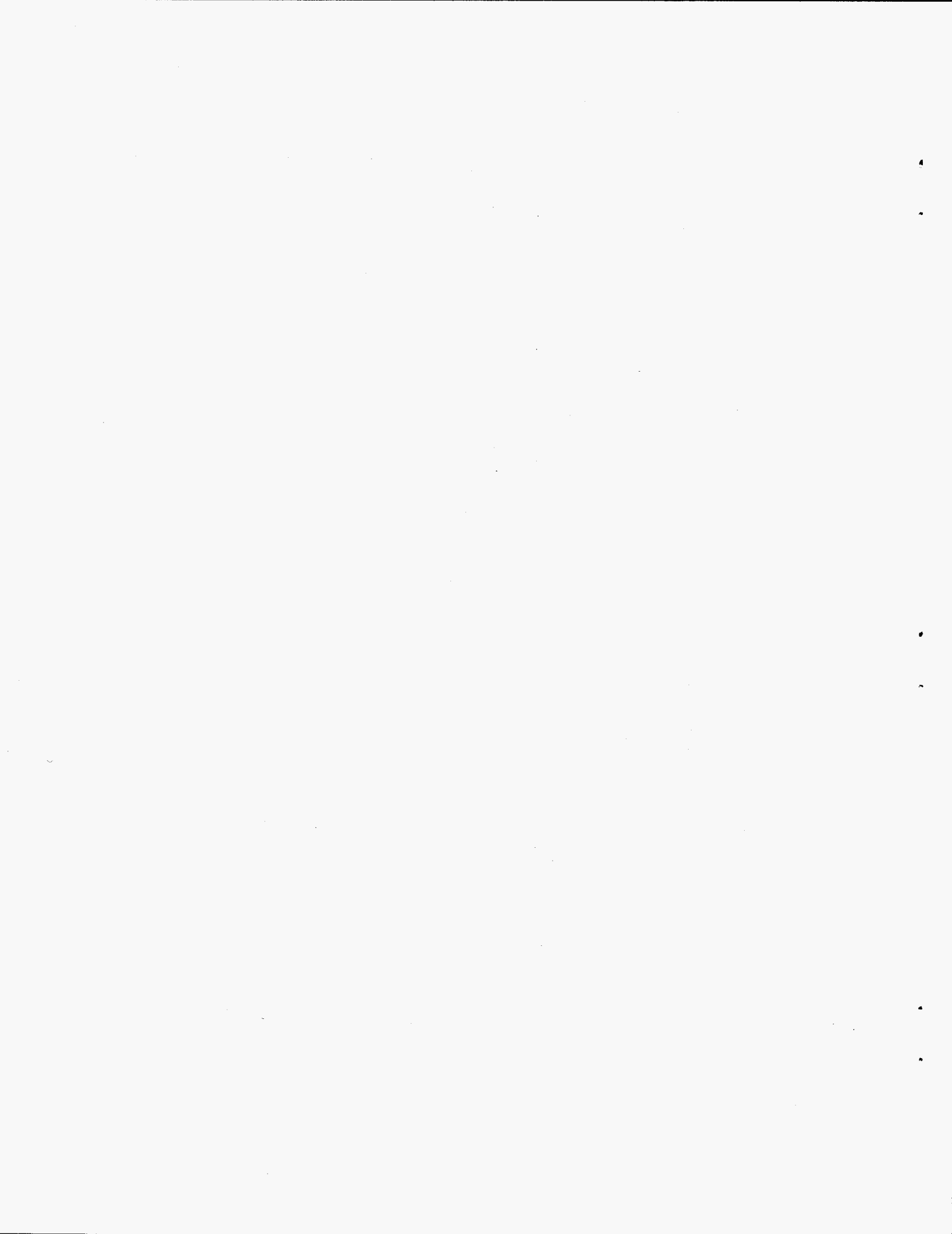
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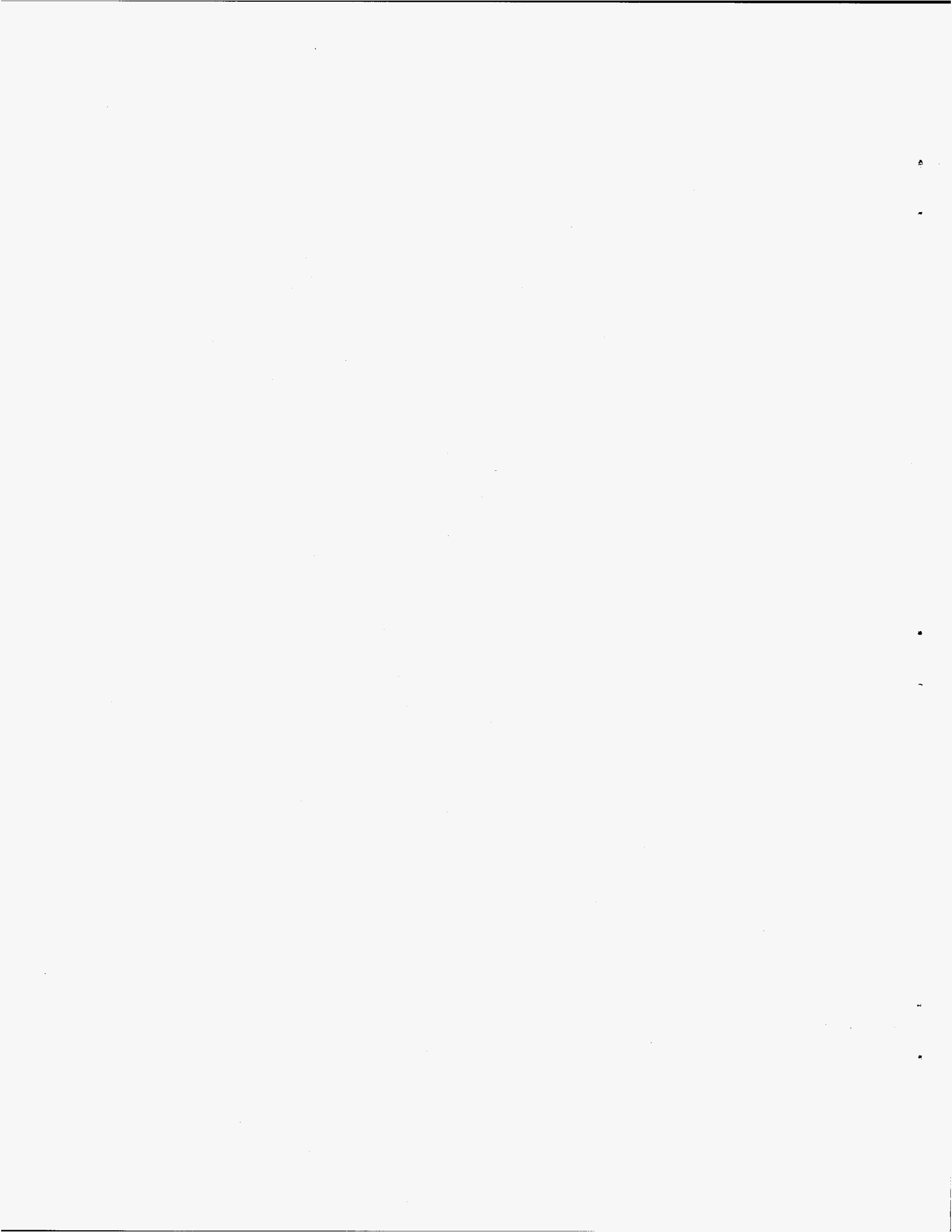
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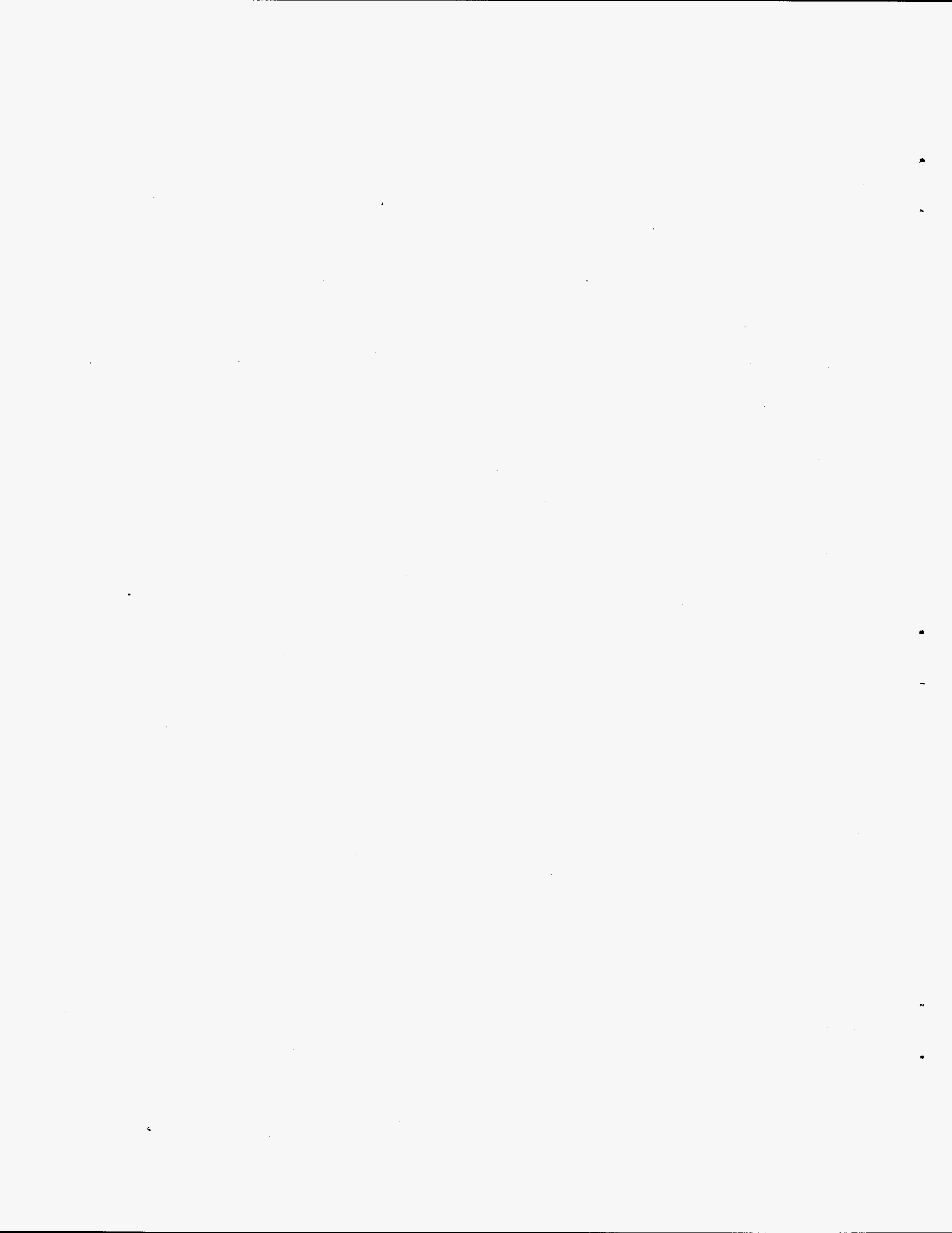
## ABBREVIATIONS

AEE	annual effective evapotranspiration
ANPP	above-ground net primary productivity
BNPP	below-ground net primary productivity
DAAC	Distributed Active Archive Center
GPPDI	Global Primary Production Data Initiative
HRBM	High Resolution Biosphere Model
NASA	National Aeronautics and Space Administration
NPP	net primary productivity
OBM	Osnabrück Biosphere Model
PIK	Potsdam Institute of Climate Impact Research
SCOPE	Scientific Committee on Problems of the Environment
TNPP	total net primary productivity



## ABSTRACT

An extensive compilation of more than 700 field estimates of net primary productivity of natural and agricultural ecosystems worldwide was synthesized in Germany in the 1970s and early 1980s. Although the Osnabrück data set has not been updated since the 1980s, it represents a wealth of information for use in model development and validation. This report documents the development of this data set, its contents, and its recent availability on the Internet from the Oak Ridge National Laboratory Distributed Active Archive Center for Biogeochemical Dynamics. Caution is advised in using these data, which necessarily include assumptions and conversions that may not be universally applicable to all sites.



# 1. INTRODUCTION

## 1.1 BACKGROUND

An extensive compilation of field data on net primary productivity (NPP) of natural and agricultural ecosystems worldwide was synthesized in the 1970s and early 1980s. Much of this work was carried out at the University of Osnabrück, Germany. More than 700 single-point estimates of NPP or biomass were extracted from the scientific literature, each with a geographical reference (latitude/longitude). The literature cited dates from 1869 to 1982, with the majority of references from the 1960s and 1970s. Although this data set has not been updated since the 1980s, it represents a wealth of information for use in model development and validation. This report documents the development of this data set and its availability.

## 1.2 NPP DATA AND MODEL DEVELOPMENT

In the early 1970s, a subset of these NPP data was used to develop and test a series of statistical-correlative models of NPP as a function of mean annual temperature and precipitation. The later versions of these models included modifications for soil, seasonality, agriculture, and other human influences (Lieth, 1973; Esser, 1984; Esser and Lautenschlager, 1994).

Early work on modeling NPP on a continental or worldwide basis was based upon the correlation between NPP and "vegetation period" (i.e., length of growing season). In the absence of adequate worldwide data on vegetation period, the parameter annual effective evapotranspiration (AEE) was substituted, since it could be estimated on a regional basis. Using a set of NPP data published by Lieth (1972), the first NPP regression model was constructed by Lieth and Box (1972) and entitled the C. W. Thornthwaite Memorial Model. With an extended set of NPP data, this correlation was subsequently recalculated as a sigmoid function, modified by a soil-fertility correction factor derived from United Nations Food and Agriculture Organization soil classes (the Templin Model; Lieth and Esser, 1982).

Using climate data readily available for a multitude of points worldwide and a set of 52 NPP data points grouped into four regions from the tundra to the tropics, the early correlative model was refined to give the following functions and published as the Miami Model (Lieth, 1972, 1973, 1975):

$$NPP = \min [NPP_T, NPP_p],$$

where

$$NPP_T = 3000 / (1 + e^{1.315 - 0.119T}),$$

$$NPP_p = 3000(1 - e^{-0.000664p}),$$

T = mean annual temperature,

p = mean annual precipitation.

That is, NPP in  $g/m^2/year$  (grams per square meter per year of dry matter) is estimated as the minimum of two functions which may be limiting productivity. In general, regions with mean annual temperature below  $5^\circ C$  are temperature-limited, while the majority of warmer regions are limited by precipitation. The Miami Model continues to be used as a benchmark for simulation of global NPP (Foley 1994); it was later modified using a look-up table of soil-fertility factors and published as the Hamburg Model (Esser et al., 1982).

The Osnabrück Biosphere Model (OBM) is a more sophisticated global carbon balance model, regionalized on a 2.5° grid and driven by climate (mean annual temperature and precipitation) together with correction factors for soil fertility, atmospheric CO<sub>2</sub>, and human land-use influences (Esser, 1984, 1986, 1987, 1991). However, it is descended from the same family of models, having its equations for NPP based upon the earlier Miami and Hamburg models of Lieth (1973, 1975) and Esser et al. (1982). The OBM has been used to investigate the climatic limitations of grasslands in contrast to coniferous forests (Esser, 1992), and its predictions of biogeochemical responses to climate change have been contrasted with those of a more process-based model (McGuire et al., 1993).

The High Resolution Biosphere Model (HRBM) is the most recent member of this model lineage, running at 0.5° resolution and incorporating a wide range of equations to represent the carbon balance of a number of vegetation and soil compartments across 17 different biome types (Esser and Lautenschlager, 1994; Esser et al., 1994). It has been used to estimate the changes of carbon storage in the major pools of the terrestrial biosphere from 18,000 BP to the present for scenarios with and without a CO<sub>2</sub> fertilization effect. The latest versions of the HRBM incorporate the balance of stable carbon isotopes (Wittenberg and Esser, 1997) and the nitrogen cycle (Nevison et al., 1996).

### 1.3 GPPDI AND THE NPP DATABASE

Over the past few years, a coordinated strategy to improve global estimates of terrestrial primary production through measurements and modeling has emerged. An essential part of the strategy is compiling a reference database of NPP measurements from field studies for developing and/or validating global ecosystem models. This need is recognized by the scientific committees of the International Geosphere-Biosphere Programme's Data and Information System, and its core projects on Global Analysis Interpretation and Modeling, Global Change in Terrestrial Ecosystems, and Biological Aspects of the Hydrological Cycle, as well as by the International Council of Scientific Unions' Scientific Committee on Problems of the Environment (SCOPE). The Global Terrestrial Net Primary Productivity First Model Intercomparison Workshop, hosted by the Potsdam Institute of Climate Impact Research (PIK) at Potsdam, Germany, in July 1994, resulted in an action item to develop and make available a database of NPP data (Lurin et al., 1994; Cramer et al., 1997). As a result, the Global Primary Production Data Initiative (GPPDI) (Prince et al., 1995) has been adopted by a steering committee of representatives from the international groups listed.

The GPPDI project consists of four components: Oak Ridge National Laboratory (ORNL), United States; the Geography Department of the University of Maryland, United States; *Centre d'Etudes Spatiales de la Biosphère*, Toulouse, France; and PIK, Germany. ORNL is compiling field measurement data from the literature and other sources. Documenting and providing access to the NPP data described in this report is part of the work that ORNL is performing under the auspices of the GPPDI (Olson et al., 1995; Olson and Prince, 1996; Olson et al., 1997).

## 2. DATA PROCESSING

### 2.1 DATA COMPILATION

The data compilation process includes identifying sites and sources of NPP data, acquiring data and documentation, performing quality assurance checks, reformatting and documenting data, entering data into a database, reviewing data, and, finally, releasing data to the public. In the case of an existing extensive data compilation such as that described here, many of the initial steps in this process were already complete. Nevertheless, as DeAngelis et al. (1981) found more than 15 years ago when compiling and publishing the International Biological Program Woodlands Data Set,

“...data did not always conform easily to the uniform format in which it is presented here. Repeated communications with members of...projects were often employed before deciding on appropriate values.”

The task of presenting data in a uniform and user-friendly format is not to be underestimated. As far as possible, we have included here the information required by the metadata guidelines proposed by the Ecological Society of America (Michener et al., 1997). At the time of writing, we intend to republish these data and metadata, following these guidelines more exactly.

Several different versions of the Osnabrück data set were exchanged between Gerd Esser, Jonathan Scurlock, Miguel Clüsener, and Dick Olson between 1988 and 1995. Starting with an October 1995 version and eliminating duplicates, these were condensed into a list of 720 unique records by Scurlock and Olson. Most of these (632, or 88%) were matched to a list of 356 references from the primary literature. The original form of this bibliography contained many more references than records, including multiple sources for the same author and study, as well as additional references to data on standing biomass, soils, and so forth. Since this is a useful resource in its own right, an edited and corrected compilation of these 858 references is published here with the cross-references to the NPP records highlighted.

### 2.2 SITE SELECTION PROCESS

The sites primarily represent natural systems; however, unusual sites, such as crops, fertilized pastures, very young or very old forest stands, and plantations were included (and have been flagged where possible). The data set includes NPP data based on measurements collected over the past 100 years by investigators using a variety of methods and algorithms to estimate NPP. The scientific literature considered for inclusion in the data set was selected through a review of collections such as *Biological Abstracts*, *Chemical Abstracts*, *Agricola*, and *Current Contents*, as well as of a number of textbooks and monographs. Lieth, Esser, and co-workers extracted data predominantly from primary publications, that is, those papers that described the original work. The minimum requirements for data to be considered were the following:

- at least a vague geographical reference to the site of measurement (data related to vegetation types only were not considered) and
- the use of one of the commonly accepted methods of assessing terrestrial NPP (Whittaker and Marks, 1975).



Where the geographical coordinates of the experimental site were not included in the original paper, Lieth, Esser et al. selected the coordinates from maps or based them on site descriptions. Operational navigation charts (Defense Mapping Agency Aerospace Center, St. Louis Air Force Base, Missouri 63118, U.S.A.) and other regional and local maps were used for this purpose. Although croplands and other intensively used areas were generally left out of the data set, in order to show the total range of NPP within natural and semi-natural vegetation types, there was no general exclusion of anthropogenically influenced sites, and such influences were documented as far as possible.

### 2.3 DATA SCREENING AND QUALITY ASSESSMENT

The quality assessment process recently performed by Scurlock and Olson on these data consisted of selecting those records for which complete and consistent information was available on (1) NPP, (2) latitude/longitude (corresponding to known land masses), (3) biome or vegetation type, and (4) at least one literature reference. The criteria for consistency included the use of common systems of names, units, and so on. Names of countries and other data categories were translated from a mixture of English and German to English only. By sorting and re-sorting the records in order of each variable, it was possible to check for out-of-range values and to cross-check many suspect records against the original primary literature (or at least against the titles of the primary literature references). In certain cases where the primary literature was readily available (e.g., *Ecology*, *Journal of Ecology*, *Oecologia*, etc.), data, vegetation type, and geographical coordinates were checked more thoroughly (see also below). Further duplicates or near-duplicates were eliminated at this stage.

Sites were re-mapped using Geographical Information System software, and suspect sites that were located in oceans or other unlikely areas were identified. Suspect data were checked against original records and corrected in the database where necessary. During the checking process, it was discovered that the geographical coordinates were originally recorded using two conventions, decimal degrees (ddd.dd) and degrees and minutes (ddd.mm), with no easy way to distinguish the difference. Since all coordinates are now given as degrees to two decimal places (ddd.dd), the maximum potential error for an individual site is 0.39 degrees, assuming that a coordinate was originally recorded as ddd.59 (59 minutes) and then erroneously taken as decimal degrees, instead of converting to its actual decimal equivalent (ddd.98). Many of the records were checked against other compilations of NPP data (DeAngelis et al., 1981; Cannell, 1982) and if matches were found, correct coordinates were entered and flagged as being confirmed.

### 2.4 DATA FORMAT AND ORGANIZATION

The Osnabrück NPP data set includes a site identifier, latitude, longitude, author, country, NPP estimates, vegetation type, and other variables (Table 1). The vegetation-type field begins with a generalized biome type (including tundra, forest, Mediterranean, savanna, grassland, desert, wetland, and a number of managed vegetation types) and is followed by more specific vegetation terminology derived from the original data. Caution is advised in using these biome/vegetation types because they were not defined consistently within the original data set, and nearly 200 sites lack any vegetation designation.

To achieve completeness in a single synthesis file, a single NPP value (NPP\_C) is included for each site that represents the sum of above-ground (ANPP) and below-ground (BNPP) components, expressed in grams of carbon per square meter per year ( $\text{g C/m}^2/\text{year}$ ). Conversion factors were used as agreed upon at the 1995 Potsdam NPP Model Intercomparison Workshop (Cramer et al.,

**Table 1. Alphabetical list of variables in the Osnabrück NPP data set**

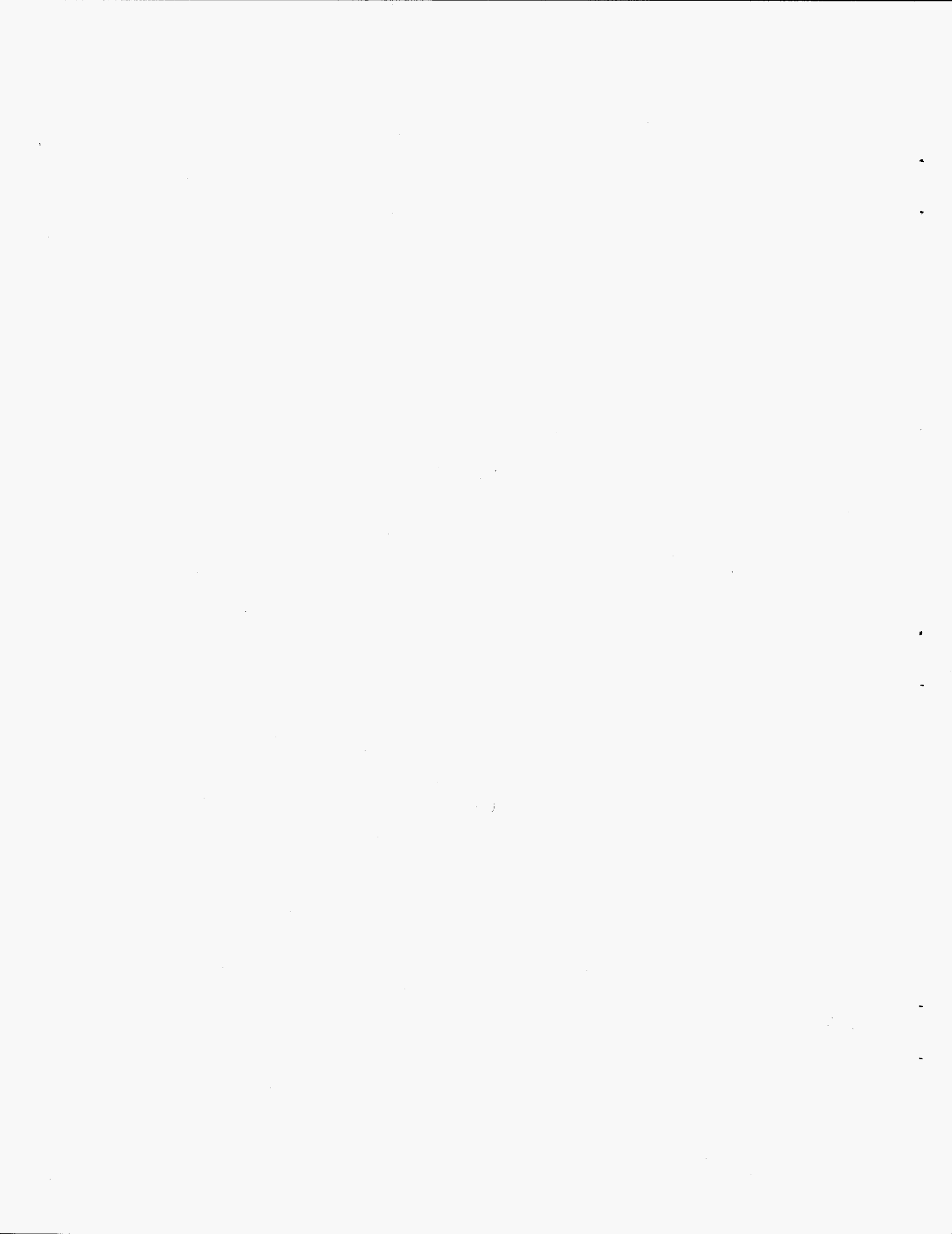
Variable	Definition
ANPP_max	Above-ground NPP, maximum value given (g/m <sup>2</sup> /year)
Author	First author of original reference
BNPP_max	Below-ground NPP, maximum value given (g/m <sup>2</sup> /year)
Country	Country of study
Latitude	Latitude (decimal degrees)
LL_flag	Latitude/longitude, qualified as follows: ? = not verified; + = correct; * = reasonable estimate
Longitude	Longitude (decimal degrees)
NPP_C	Total NPP, adjusted to carbon units (g C/m <sup>2</sup> /year)
NPP_flag	NPP qualified as follows: ? = suspect; I = irrigated; F = fertilized; E = error
NPP_ID	Identification number
Precip	Annual total precipitation (mm)
Soil_remarks	Soil characteristics
Species	Major species present
Temp	Annual average temperature (°C)
TNPP_max	Total NPP, maximum value given (g/m <sup>2</sup> /year)
Vegetation_type	Vegetation type or mixture of types
Year	Year of study

1997; Olson et al., 1997). Where BNPP was not reported, it was assumed to be equal to ANPP. A ratio of 0.475 was used to convert dry biomass weight to carbon content. Total NPP was estimated as TNPP (where available), or as the sum of ANPP and BNPP (or from ANPP × 2, if BNPP was not estimated), and then converted to g C/m<sup>2</sup>/year.

The data are available in a single spreadsheet file, as well as in two complementary ASCII files (see Appendix). The bibliography of original-source references in the Appendix is provided in another file. The references can be linked to the site records by the author combined with the year; we have found that only the first four characters of author are generally needed (the data file usually contains the name of the first author, whereas the bibliography file contains the full list of authors).

## 2.5 BIBLIOGRAPHY

The list of 858 references in the Appendix has been edited by Scurlock and Olson for consistency of citation style, since it was originally compiled by a number of individuals using different forms of abbreviations. Journal and book titles were checked against citation indexes and major libraries and are given in full where available. Duplicates, errors, and spelling and typographical mistakes have been eliminated as far as possible, as have obvious mismatches between journal volume numbers and years. A number of missing references described in the data set have been restored.



### 3. RESULTS

In order to show the scope of these data, the statistical distribution of the NPP data set is presented in Tables 2 and 3. Of the 720 records, about two-thirds have ANPP estimates that range between 1 and 8530 g/m<sup>2</sup>/year (dry matter)—or 2923 g/m<sup>2</sup>/year, excluding doubtful values, wetlands, and crops/pastures and other likely managed systems. Similarly, approximately one-fourth of the sites have estimates for BNPP that range between 0 and 5828 g/m<sup>2</sup>/year—or 2040 g/m<sup>2</sup>/year, excluding doubtful values, wetlands, and crops/pastures and other likely managed systems. Total NPP, for which more than half of the sites have estimates, ranges from 3 to 9320 g/m<sup>2</sup>/year (dry matter) — or 3580 g/m<sup>2</sup>/year, excluding doubtful values, wetlands, and crops/pastures and other likely managed systems. There were 17 records with NPP estimates considered questionable for their latitude and climate, one erroneous entry, and 22 sites flagged as definitely irrigated, fertilized, or both.

Sites were located in 57 countries (Table 4 and Fig. 1), with 42% of the sites located in the United States. The geographical position was reported for 679 records, of which 130 (19%) are known with certainty; 263 (39%) are considered reasonable estimates; and 286 (42%) have not been verified. Table 5 summarizes the distribution of 526 of the sites by generalized biome type, indicating that 37% were described as forests of various kinds. A wide variety of plant genera were represented by the sites: out of the 564 sites for which dominant species were given, a limited number of genera predominate (e.g., *Picea*, *Pinus*, *Quercus*, *Spartina*). Table 6 lists those genera with seven or more records (i.e., occurring at more than about 1% of all sites).

**Table 2. Statistical analysis of variables in the Osnabrück NPP data set**

Variable	Definition <sup>a</sup>	N	Mean	Minimum	Maximum
LAT_DD	Latitude (decimal degrees)	679	36	-65	76
LONG_DD	Longitude (decimal degrees)	679	-24	-165	177
ANPP_MAX	Above-ground NPP (g/m <sup>2</sup> /year)	482	865	1	8530
BNPP_MAX	Below-ground NPP (g/m <sup>2</sup> /year)	184	434	0	5828
TNPP_MAX	Total NPP (g/m <sup>2</sup> /year)	405	1517	3	9320
NPP_C	Total NPP, adjusted (g C/m <sup>2</sup> /year)	719	772	1	8104
TEMP	Annual average temperature (°C)	161	9	-12	28
PREC	Annual total precipitation (mm)	221	1049	95	4000

<sup>a</sup>See Table 1 for more complete definition of variables.

**Table 3. Distribution of productivity variables by biome**

Biome	ANPP <sup>a</sup>				BNPP <sup>b</sup>				TNPP <sup>c</sup>				NPP_C <sup>d</sup>			
	N	mean	min	max	N	mean	min	max	N	mean	min	max	N	mean	min	max
Unknown	1565	748	1	4144	22	502	0	1284	44	2224	30	9320	195	711	14	4427
Crops	12	1727	630	4100	5	884	121	2300	28	2999	410	6730	35	1564	195	3895
Desert	19	196	4	1585	14	198	21	629	29	480	20	1900	32	217	10	903
Forest	130	974	70	2923	67	195	9	750	129	1246	126	3620	192	701	60	2423
Grassland	52	530	77	2407	33	545	53	1166	44	1136	58	3538	72	523	28	1681
Mediterranean	5	374	100	850	1	310	310	310	1	722	722	722	5	346	95	808
Pasture	12	2686	134	8530	0	.	.	.	29	3765	409	8590	40	2057	127	8104
Plantation	7	1309	970	1551	5	253	190	363	7	1385	740	1799	9	802	352	1473
Savanna	11	1092	85	2080	10	1220	290	2040	15	1806	70	3580	16	820	33	1701
Tundra	24	134	7	1189	13	227	3	2110	31	302	3	3299	42	135	1	1567
Wetland	45	1248	106	4128	14	987	161	5828	48	1078	192	6136	81	891	91	3922

<sup>a</sup>ANPP = above-ground net primary productivity.

<sup>b</sup>BNPP = below-ground net primary productivity.

<sup>c</sup>TNPP = total net primary productivity.

<sup>d</sup>NPP\_C = adjusted total net primary productivity.

Table 4. Frequency of study sites by country

Country	Frequency	Percent
Afghanistan	1	0.1
Algeria	2	0.3
Antarctica	6	0.8
Australia	17	2.4
Austria	11	1.5
Belgium	16	2.2
Burma	4	0.6
Canada	33	4.6
Chad	5	0.7
Chile	1	0.1
Columbia	1	0.1
Costa Rica	1	0.1
Cuba	1	0.1
Czechoslovakia	1	0.1
Denmark	3	0.4
Denmark/Greenland	1	0.1
Egypt	1	0.1
El Salvador	3	0.4
Finland	5	0.7
France	10	1.4
Germany	11	1.5
Ghana	3	0.4
Greece	1	0.1
Hungary	2	0.3
India	40	5.6
Indonesia	3	0.4
Ireland	3	0.4
Israel	2	0.3
Ivory Coast	12	1.7
Jamaica	5	0.7
Japan	37	5.1
Java	1	0.1
Malaysia	2	0.3
Mexico	4	0.6
Netherlands	1	0.1
New Guinea	2	0.3
New Zealand	10	1.4
Nigeria	4	0.6
Norway	4	0.6
Peru	1	0.1
Philippines	1	0.1
Poland	2	0.3
Romania	5	0.7
Rwanda	2	0.3

**Table 4 (continued)**

Senegal	3	0.4
Sierra Leone	1	0.1
South Africa	2	0.3
Spain	1	0.1
Sweden	19	2.6
Syria	3	0.4
Tanzania	4	0.6
Thailand	1	0.1
Trinidad	4	0.6
UK	27	3.8
USA	300	41.7
USSR	66	9.2
Venezuela	4	0.6
Zaire	2	0.3
Zimbabwe	2	0.3

**Table 5. Frequency of study sites by dominant genus**

Species (genus)	Frequency	Percent
Abies	14	2.5
Agropyron	9	1.6
Andropogon	7	1.2
Artemisia	8	1.4
Beta	6	1.1
Betula	10	1.8
Calluna	11	2.0
Carex	13	2.3
Cynodon	9	1.6
Fagus	21	3.7
Festuca	9	1.6
Larix	7	1.2
Pennisetum	7	1.2
Picea	33	5.9
Pinus	37	6.6
Populus	9	1.6
Pseudotsuga	7	1.2
Quercus	41	7.3
Spartina	21	3.7
Zea	7	1.2
Other genera	278	49.3
Genus not reported	156	

Table 6. Frequency of study sites by generalized vegetation type

Biome	Frequency	Percent
Crops	35	6.7
Desert	32	6.1
Forest	194	36.9
Grassland	72	13.7
Mediterranean	5	1.0
Pasture	40	7.6
Plantation	9	1.7
Savanna	16	3.0
Tundra	42	8.0
Wetland	81	15.4
Unknown	194	



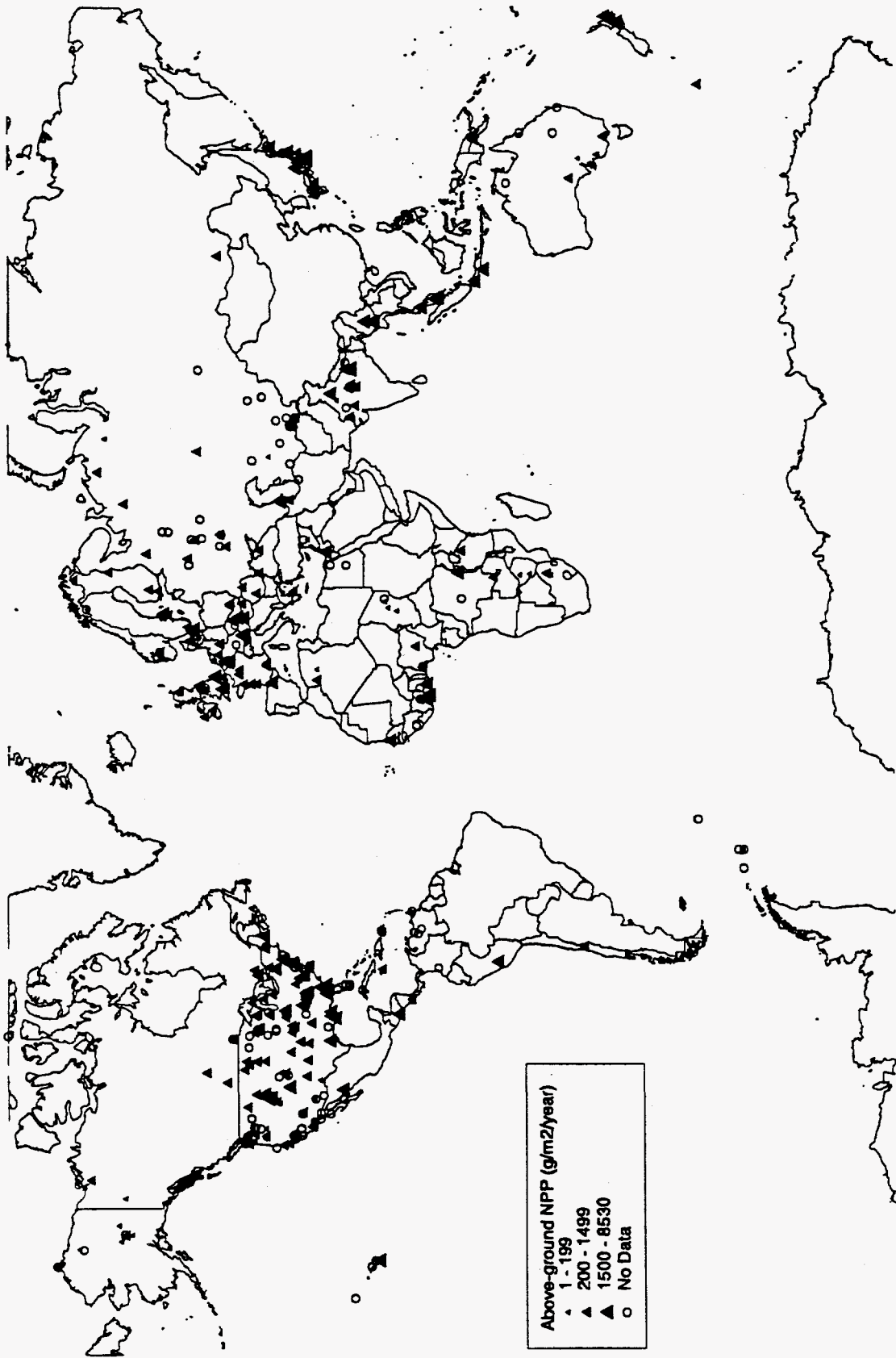


Fig. 1. Global map of study sites in the Osnabrück NPP data set, showing magnitudes of NPP values reported in the literature.

## 4. DATA AVAILABILITY

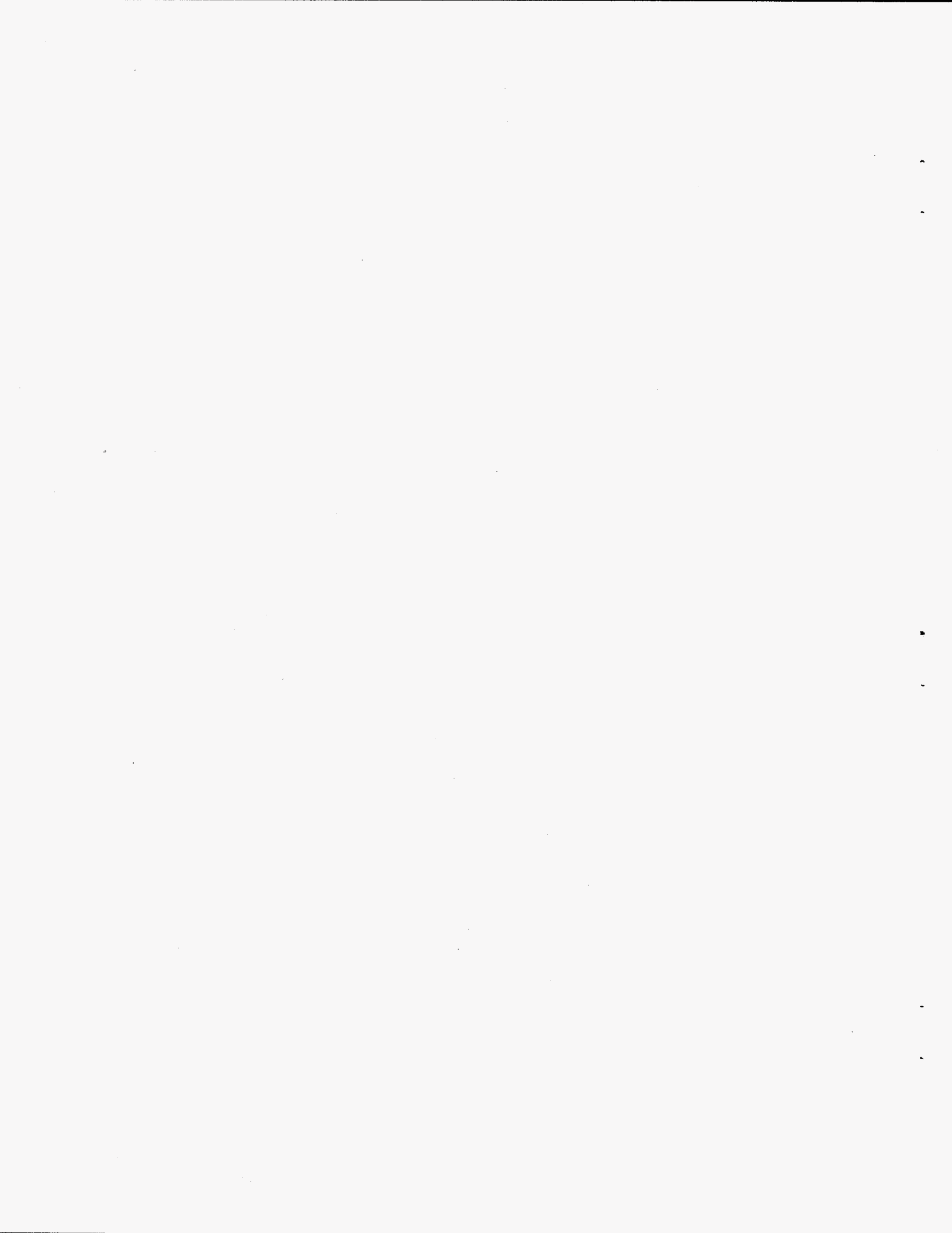
### 4.1 ORNL DISTRIBUTED ACTIVE ARCHIVE CENTER FOR BIOGEOCHEMICAL DYNAMICS

The NPP data are currently maintained and distributed by ORNL Distributed Active Archive Center (DAAC) for Biogeochemical Dynamics (<http://www-eosdis.ornl.gov>). The DAAC provides information about the Earth's biogeochemical dynamics to the global-change research community, policymakers, educators, and the interested general public. The ORNL DAAC is part of the Earth Observing System Data and Information System Project of the National Aeronautics and Space Administration (NASA), which forms an integral part of NASA's contribution to the U.S. Global Change Research Program. For information about this data set and others, the DAAC User Services staff may be contacted at

ORNL DAAC  
Oak Ridge National Laboratory  
P.O. Box 2008  
Oak Ridge, TN 37831-6407, U.S.A.  
Telephone: (423) 241-3952  
Fax: (423) 574-4665  
Email: [ornldaac@ornl.gov](mailto:ornldaac@ornl.gov)

### 4.2 CAUTIONS IN USING THE DATA

Some of the sites in the data set are agricultural sites, and others may represent natural systems with management treatments such as fertilizer, irrigation, grazing, burning, or thinning. Where possible, we have tried to indicate uncertainties or unusual treatments, but our data-checking could not possibly cover all the records included in the data set. Detailed descriptions of the study sites, sampling methods, and the method of estimating NPP are available only in the original literature, and the inclusion of points in this data set is no guarantee that the NPP values are strictly comparable. The data should be regarded as illustrating the range of NPP for natural ecosystems worldwide. Creating a single compilation of NPP data for this large number of sites required certain assumptions and conversions that may not be universally applicable to all sites (Section 2.4). We anticipate that users may find these files useful as an index to select more detailed NPP site data or that they may select a subset of these files for their use. Users of this synthesis are strongly encouraged to review the metadata and more detailed data files available for certain sites through the ORNL DAAC, or to check the primary literature prior to using these data.



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**APPENDIX**  
**GLOBAL NPP ESTIMATES**



## APPENDIX

### GLOBAL NPP ESTIMATES

Table A of this appendix shows the 720 estimates of net primary productivity (NPP) in the database described in this report. The variables in the column headings are defined as follows.

Variable	Definition
NPP ID	Identification number
Country	Country of study
Author	First author of original reference; * = full citation not available
Year	Year of study
Latitude	Latitude (decimal degrees)
Longitude	Longitude (decimal degrees)
LL flag	Latitude/longitude, qualified as follows: ? = not verified; + = correct; * = reasonable estimate
ANPP max	Above-ground NPP, maximum value given (g/m <sup>2</sup> /year)
BNPP max	Below-ground NPP, maximum value given (g/m <sup>2</sup> /year)
TNPP max	Total NPP, maximum value given (g/m <sup>2</sup> /year)
NPP C	Total NPP, adjusted to carbon units (g C/m <sup>2</sup> /year)
NPP flag	NPP qualified as follows: ? = suspect; I = irrigated; F = fertilized; E = error
Temp	Annual average temperature (°C)
Precip	Annual total precipitation (mm)
Vegetation type	Vegetation type or mixture of types
Species	Major species present
Soil remarks	Soil characteristics

The data in the table are also available from the ORNL DAAC (details in Section 4.1) as a single spreadsheet file (ods\_xls.bin, Excel 4.0; or ods\_wk1.bin, Lotus 1-2-3 Version 2.0), or as two complementary ASCII files (ods\_npp1.txt and ods\_npp2.txt), which may be linked by the NPP\_ID identification number in the two files. In these ASCII files, missing values or empty fields are indicated by large negative numbers beginning "-99", or "N/A" (not available) in the case of text fields.

This appendix also includes a bibliography of 858 original literature references to sources of data on net primary productivity. The bibliography is also available in a number of file formats (odsr\_doc.bin, Word 7.0; odsr\_wp5.bin, WordPerfect 5.1; ods\_refs.txt, ASCII text).



Table A. Estimates of net primary productivity (NPP), in order of first author and year

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
259	USA	Adegbola, A.R., et al.	1966	34.00	-118.00	+	.	.	2720	1292	F	.	.	Pasture	<i>Cynodon dactylon</i>	
451	Trinidad	Adeniyi, S.A., et al.	1960	10.50	-61.25	*	.	.	4930	2342	.	.	.	Pasture	<i>Digitaria decumbens</i>	
793	USSR	Afanas' Yeva, Y.A.	1947	51.70	36.20	?	.	.	400	190	.	.	.	Grassland / meadow steppe		
1058	Spain	Alvera, B.	1973	42.50	-0.65	+	1756	.	.	1668	.	8	802	Forest	<i>Pinus sylvestris</i> ; <i>Ilex aquifolium</i> ; <i>Fagus sylvatica</i>	Calcareous well-drained
830	India	Ambasht, R.S., et al.	1971	26.42	85.05	?	.	.	2880	1368	.	.	.	Grassland		
814	India	Ambasht, R.S., et al.	1971	25.30	83.17	?	.	.	2880	1368	.	.	.	Grassland	<i>Heteropogon contortus</i>	
2150	Sweden	Andersson, F.	1970	55.73	13.30	?	.	.	720	342	.	7.3	615	Grassland	<i>Filipendula ulmaria</i> ; <i>Carex</i>	
974	Sweden	Andersson, F.	1973	55.98	13.17	+	1540	240	1780	846	.	6.5	750	Forest	<i>Fagus sylvatica</i> ; <i>Lamium galeobdolon</i> ; <i>Oxalis acetosella</i> ; <i>Stellaria nemoreum</i>	Brown forest soil on a glacial subfluvial subs.
975	Sweden	Andersson, F.	1973	55.75	13.92	+	1060	170	1230	584	.	6	800	Forest	<i>Fagus sylvatica</i> ; <i>Deschampsia</i>	podsol with mor on sandy moraine
976	Sweden	Andersson, F.	1973	55.70	13.63	+	1670	230	1900	903	.	6.5	650	Forest	<i>Fagus sylvatica</i> ; <i>Mercurialis perennis</i>	brown earth gley soil on moraine
1116	Sweden	Andersson, F.	1973	55.73	13.30	+	1290	230	1520	722	.	7.5	644	Forest / mixed deciduous woodland	<i>Quercus robur</i> ; <i>Tilia cordata</i> ; <i>Sorbus aucuparia</i> ; <i>Ulmus glabra</i>	Brown forest gley
1115	Sweden	Andersson, F.	1973	55.98	13.17	+	1370	260	1630	774	.	6.5	750	Plantation	<i>Picea abies</i> ; <i>Oxalis</i> ; <i>Rubus</i>	
2343	Japan	Ando, T.	1981	33.33	133.00	+	804	121	925	439	.	13.6	2748	Forest	<i>Tsuga sieboldii</i> ; <i>Chanaecyparis</i> ;	Brown forest soil (dry)
2344	Japan	Ando, T.	1981	33.33	133.00	+	1304	180	1484	705	.	13.6	2748	Forest	<i>Abies firma</i> ; <i>Actinodaphne</i> ;	Brown forest soil (wet)
847	USSR	Andreev, V.N., et al.	1972	66.67	65.00	*	38	.	.	36	.	.	.	Tundra		
145	USA	Art *	1976	40.65	-73.12	?	.	.	1100	523	.	10.3	1200	Forest / temperate	<i>Ilex</i> ; <i>Sassafras</i> ; <i>Nyssa</i> ; <i>Prunus</i> ; <i>Pyrus</i>	
260	USA	Ashley, D.A., et al.	1965	.	.	.	.	.	2600	1235	IF	.	.	Pasture	<i>Cynodon dactylon</i>	
261	USA	Ashley, D.A., et al.	1965	.	.	.	.	.	2190	1040	IF	.	.	Pasture	<i>Paspalum notatum</i>	
2419	Australia	Attwill, P.M.	1979	-37.42	145.17	+	1212	.	.	1151	.	11	1000	Forest	<i>Eucalyptus obliqua</i>	Krasnozems

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
157	USA	Baier, J.D., et al.	1972	40.00	-89.00	+	243	.	.	231	.	.	.	.	.	.
180	USA	Baier, J.D., et al.	1972	40.00	-90.00	+	417	.	.	396	.	.	.	.	.	Sandy
19	USA	Balph, D.F., et al.	1974	41.87	-112.75	?	170	.	.	162	.	.	273	.	Agropyron desertorum	.
20	USA	Balph, D.F., et al.	1974	41.87	-112.75	?	228	.	.	217	.	20	273	.	Atriplex confertifolia; Artemesia tridentata	.
831	India	Bandhu, D.	1970	26.42	85.10	?	.	.	1550	736	.	.	.	Forest / dry deciduous	.	.
2149	UK	Barclay-Estrup, P.	1970	57.67	-3.00	*	393	.	.	373	.	.	.	.	Calluna vulgaris	.
82	Mexico	Barnard, J.L.	1962	30.50	-116.00	*	.	.	550	261	.	.	.	Wetland / salt marsh	Spartina foliosa	.
592	Zaire	Bartholomew, W.V., et al.	1953	-3.00	22.00	+	.	.	3150	1496	.	.	.	Forest / tropical moist evergreen	.	.
111	USA	Baumann, P.C., et al.	1974	43.40	-89.40	?	819	662	1481	703	.	6.9	777	Grassland / prairie-forest	.	.
2409	Germany	Baumgartner, A.	1981	48.00	12.00	+	1551	.	.	1473	.	7	875	Plantation	Picea	Para-brown earth
787	USSR	Bazilevich *	1962	55.00	83.00	+	.	.	980	466	.	.	.	Forest / deciduous	Betula; Populus; Salix; Carex; Calamagrostis	.
786	USSR	Bazilevich *	1962	55.00	83.00	+	.	.	1260	599	.	.	.	Forest / deciduous broad-leaved	.	Dark grey solodised soil
832	India	Bazilevich, N.I., et al.	1966	26.28	73.08	?	.	.	1450	689	.	.	.	Savanna / dry	Prosopis sp.	.
711	Syria	Bazilevich, N.I., et al.	1972	34.50	41.08	?	117	43	160	76	.	.	.	Desert	Frankenia hirsuta; Haloenemum strobilaceum	Solonchaks (page 204; 1)
1010	UK	Bellamy, D.J., et al.	1966	54.75	-2.50	?	153	.	.	145	.	.	.	.	Calluna vulgaris	.
2391	France	Berger, A., et al.	1978	43.50	4.50	*	1025	.	.	974	.	.	.	.	Salicornia	.
72	USA	Bernard, J.M.	1974	45.33	-93.17	?	738	.	.	701	.	.	.	.	Carex rostrata	.
253	USA	Bernard, J.M.	1974	45.42	-93.67	?	780	197	977	464	.	.	.	Wetland / bog	Carex rostrata; Equisetum fluviatile; Sagittaria latifolia	.
279	USA	Bernard, J.M., et al.	1973	43.65	-94.72	?	.	298	.	283	.	.	.	.	Typha glauca; Sparganium eurycarpum	.
388	USA	Bernard, J.M., et al.	1974	42.17	-77.00	*	1580	161	1741	827	.	.	.	Wetland	Carex lacustris	.

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
591	Ivory Coast	Bernhard, F.	1970	8.00	-5.00	+	.	.	2300	1093	.	.	.	Forest / moist evergreen		
2530	USA	Bernhard, J.M., et al.	1979	43.42	-76.50	?	1080	260	1340	637	.	.	.		Carex rostrata	
150	USA	Billings, Bliss *	1959	41.33	-106.00	*	.	.	186	88	.	.	.	Tundra / alpine		
2399	Romania	Bindiu, C.	1981	45.38	23.25	+	1130	.	.	1074	.	5.1	1025	Forest	Abies alba; Oxalis; Pleurozium	Brown forest soil
452	USA	Blackman, G.E., et al.	1959	25.00	-165.00	+	.	.	6410	3045	.	.	.	Crops	Saccharum officinale	
153	USA	Bliss, L.C.	1956	44.00	-71.00	+	.	.	206	98	.	.	.			
151	USA	Bliss, L.C.	1956	41.33	-106.00	*	.	.	336	160	.	.	.	Tundra / alpine		
152	USA	Bliss, L.C.	1956	44.00	-71.00	+	.	.	85	40	.	.	.	Tundra / alpine		
154	USA	Bliss, L.C.	1956	41.33	-106.00	*	.	.	67	32	.	.	.	Tundra / alpine	Carex scopulorum; C. arummondiana; Geum turbinatum	
155	USA	Bliss, L.C.	1956	69.00	-152.00	+	.	.	60	29	.	.	.	Tundra / arctic	Carex; Eriophorum	
2115	USA	Bliss, L.C.	1966	44.27	-71.30	+	176	.	.	167	.	-3.6	1880		Carex; Polytrichum	Loamy sand; sandy loam
2121	USA	Bliss, L.C.	1966	44.27	-71.30	+	200	.	.	190	.	-3.4	1880		Deschampsia; Solidago; Vaccinium; Coptis; Clintonia; Cornus	
2118	USA	Bliss, L.C.	1966	44.27	-71.30	+	66	.	.	63	.	-3.4	1880		Diapensia; Rhododendron; Juncus; Solidago; Agrostis	
2117	USA	Bliss, L.C.	1966	44.27	-71.30	+	74	.	.	70	.	-3.4	1880		Juncus; Vaccinium; Potentilla; Carex; Diapensia	Loamy sand; sandy loam
2116	USA	Bliss, L.C.	1966	44.27	-71.30	+	124	.	.	118	.	-3.6	1880		Potentilla; Juncus; Vaccinium; Diapensia; Agrostis; Carex	Loamy sand; sandy loam
2120	USA	Bliss, L.C.	1966	44.27	-71.30	+	283	.	.	269	.	-3.4	1880		Vaccinium; Ledum; Cetraria	
121	Canada	Bliss, L.C.	1975	75.55	-84.67	?	82	104	185	88	.	.	.	Tundra		
122	Canada	Bliss, L.C.	1975	75.55	-84.67	?	150	130	280	133	.	.	.	Tundra		
123	Canada	Bliss, L.C.	1975	75.55	-84.67	?	37	59	97	46	.	.	.	Tundra		
124	Canada	Bliss, L.C.	1975	75.55	-84.67	?	15	28	44	21	.	.	.	Tundra		

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
125	Canada	Bliss, L.C.	1975	75.55	-84.67	?	49	5	53	25				Tundra		
327	Canada	Bliss, L.C.	1975	75.55	-84.67	?	38	60	99	47				Tundra		
329	Canada	Bliss, L.C.	1975	75.55	-84.67	?	20	3	22	10				Tundra		
337	Canada	Bliss, L.C.	1975	75.55	-84.67	?	7	104	185	88				Tundra		
188	Canada	Bliss, L.C., et al.	1972	69.50	-134.50	*			51	24				Tundra / arctic		
2222	Venezuela	Blydenstein, J.	1962				260			247				Savanna	Trachypogon	
450	Venezuela	Blydenstein, J.	1962	8.00	-66.00	+			404	192		1300		Savanna / llanos		
791	USSR	Bobritskaya, M.A.	1958	55.17	61.40	?	400			380						
81	USA	Botkin, D.B., et al.	1968	40.50	-74.48	+	396	1944	2340	1112	?		1120	Wetland / meadow		
595	Ghana	Bourliere, F., et al.	1970	8.00	-2.00	+			2920	1387			860	Forest / tropical savanna		
83	USA	Boyd *	1970	33.00	-79.50	*	150			143					Scirpus americanus	
1063	Denmark	Boysen-Jensen, Cited By Kira E	1967						740	352				Plantation / ash	Fraxinus	
2297	Tanzania	Braun, H.M.H.	1973	-3.00	35.00	+	336			319					Andropogon greenwayi	
2298	Tanzania	Braun, H.M.H.	1973	-2.92	35.17	?	164			156					Kyllinga; Sporobolus	
2296	Tanzania	Braun, H.M.H.	1973	-2.83	34.83	?	427			406					Themeda sp.	
378	USA	Bray, J.R., et al.	1959	45.40	-93.17	+			120	57		5.8	693		Aristida basimarea; Setaria glauca	Fine sand; few loam
377	USA	Bray, J.R., et al.	1959	45.40	-93.17	+			960	456		5.8	693		Secale cereale	Fine sand; few loam
379	USA	Bray, J.R., et al.	1959	45.40	-93.17	+			160	76		5.8	693		Sorghastrum nutans	Fine sand; few loam
375	USA	Bray, J.R., et al.	1959	45.40	-93.17	+			1680	798		5.8	693		Typha (hybrid)	Fine sand; few loam
376	USA	Bray, J.R., et al.	1959	45.40	-93.17	+			630	299		5.8	693		Zizania aquatica	Fine sand; few loam
380	USA	Bray, J.R., et al.	1959	45.40	-93.17	+			410	195		5.8	693	Crops	Zea mays	Fine sand; few loam
25	Canada	Bray, J.R., et al.	1963	44.25	-79.08	?			412	196				Forest	Populus grandidentata; P. tremuloides	
26	USA	Bray, J.R., et al.	1963	46.92	-95.00	*			1014	482				Forest	Populus tremuloides	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
939	New Zealand	Brougham, R.W.	1959	-40.35	175.62	?	2300	.	.	2185	?	.	.			
932	Australia	Bryan, W.W., et al.	1965	.	.	.	.	.	2420	1150	F	.	.	Pasture	<i>Digitaria decumbens</i>	
1113	Austria	Brzoska *	1973	46.98	11.07	?	32	.	.	30	.	.	.		Androsace	
1045	Austria	Brzoska *	1973	46.98	11.07	?	.	.	32	15	.	.	.	Tundra / alpine		
136	USA	Bunnell et al. *	1975	71.30	-156.67	?	50	.	.	48	.	.	.			
138	USA	Bunnell et al. *	1975	71.30	-156.67	?	100	.	.	95	.	.	.			
137	USA	Bunnell et al. *	1975	71.30	-156.67	?	160	.	.	152	.	.	.		Various species (27)	
112	USA	Bunnell et al. *	1978	71.30	-156.70	?	100	.	.	95	.	-12	125			
2447	Australia	Bunt, J.S., et al.	1979	-18.27	146.25	?	.	.	1606	763	.	.	.	Forest / mangrove	<i>Rhizophora</i> ; <i>Ceriops</i> ; <i>Bruguiera</i> ;	
350	USA	Burger, A.W., et al.	1967	40.17	-88.17	?	1790	.	.	1701	.	.	.	Pasture	<i>Sorghum bicolor</i> x <i>sudanensis</i>	
159	USA	Burger, A.W., et al.	1967	40.00	-89.00	+	.	.	1790	850	.	.	.	Pasture	<i>Sorghum</i> sp.	
179	USA	Burgess, R.L., et al.	1976	36.00	-79.00	+	.	860	.	817	.	.	.		<i>Pinus taeda</i>	
178	USA	Burgess, R.L., et al.	1976	36.00	-84.00	+	.	370	.	352	.	.	.		<i>Quercus alba</i>	
47	USA	Burgess, R.L., et al.	1976	35.97	-84.28	?	952	.	.	904	.	13.3	1360		<i>Quercus</i> ; <i>Carya</i> ; <i>Pinus</i>	Paleudults
39	USA	Burgess, R.L., et al.	1976	36.00	-84.00	+	.	.	1226	582	.	.	.	Forest		
40	USA	Burgess, R.L., et al.	1976	35.50	-85.50	*	.	.	831	395	.	.	.	Forest		
41	USA	Burgess, R.L., et al.	1976	35.83	-83.50	?	.	.	1081	513	.	.	.	Forest		
42	USA	Burgess, R.L., et al.	1976	35.50	-84.50	*	.	.	940	447	.	.	.	Forest		
43	USA	Burgess, R.L., et al.	1976	36.00	-87.00	+	.	.	894	425	.	.	.	Forest		
44	USA	Burgess, R.L., et al.	1976	36.17	-86.83	?	.	.	970	461	.	.	.	Forest		
45	USA	Burgess, R.L., et al.	1976	35.83	-89.00	*	.	.	1074	510	.	.	.	Forest		
48	USA	Burgess, R.L., et al.	1976	35.97	-84.28	+	618	200	818	389	.	13.3	1360	Forest	<i>Cercis</i> ; <i>Pinus</i> ; <i>Liriodendron</i>	Alluvial emory silt loam
160	USA	Burr, G.O., et al.	1957	21.00	-156.60	*	.	.	6730	3197	F	.	.	Crops	<i>Saccharum</i> sp.	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
927	Australia	Burrows, W.H.	1972	-26.42	146.22	?	.	.	79	38	.	.	467	Desert / shrub	<i>Eremophila gilesii</i>	Lateritic red earth; bulk density 1.7
352	USA	Burton, G.W., et al.	1959	31.42	-83.50	+	2720	.	.	2584	F	.	.	Pasture	<i>Cynodon dactylon</i>	loamy sand
262	USA	Burton, G.W., et al.	1963	31.42	-83.50	+	2010	.	.	1910	F	.	.	Pasture	<i>Cynodon dactylon</i>	loamy sand
2393	France	Cabanettes, A., et al.	1978	.	.	.	1750	110	1860	884	.	.	.	Forest / mediterranean	<i>Pinus pinea</i>	
66	USA	Cable, D.R.	1975	32.00	-111.00	+	.	.	58	28	.	.	.	Grassland		
12	USA	Cahoon, R.D.	1975	38.17	-75.00	*	676	.	.	642	.	.	.	Wetland / salt-marsh	<i>Spartina alterniflora</i>	
139	USA	Caldwell, M.M., et al.	1974	41.08	-113.08	+	109	315	424	201	.	.	.	Desert	<i>Ceratoides lanata</i> ; <i>Atriplex confertifolia</i>	
31	USA	Caldwell, M.M., et al.	1975	41.87	-112.75	?	60	272	.	158	.	.	.	Desert	<i>Artemisia tridentata</i>	
32	USA	Caldwell, M.M., et al.	1975	41.87	-112.75	?	64	186	.	119	.	.	.	Desert	<i>Ceratoides lanata</i>	
30	USA	Caldwell, M.M., et al.	1975	41.87	-112.75	?	154	443	597	284	.	.	.	Desert	<i>Atriplex confertifolia</i>	
437	USA	Cameron, G.N.	1972	38.10	-122.50	?	.	.	1200	570	.	.	.	Wetland / salt-marsh	<i>Salicornia virginica</i>	
433	USA	Cameron, G.N.	1972	38.10	-122.50	?	.	.	1750	831	.	.	.	Wetland / salt-marsh	<i>Spartina foliosa</i>	
162	USA	Caro-Costa, R., et al.	1972	18.00	-66.50	*	.	.	3730	1772	.	.	.	Pasture	<i>Cynodon</i>	
391	USA	Carter, M.R., et al.	1973	26.00	-81.50	*	.	.	1170	556	.	.	.	Wetland / swamp	Cypress	
386	USA	Carter, M.R., et al.	1973	26.00	-81.50	*	.	.	367	174	.	.	.	Wetland / swamp	<i>Taxodium</i>	
546	Ivory Coast	Cesar., et al.	1972	8.00	-5.00	+	1000	1200	2200	1045	.	.	.	Savanna / grass	<i>Andropogon</i>	
1037	UK	Chapman, S.B., et al.	1975	50.78	-2.00	*	300	.	.	285	.	.	.		<i>Calluna vulgaris</i>	Humus-iron podsol on cocene
833	India	Chaudhary, V.B.	1967	25.30	83.17	?	.	.	853	405	.	.	.	Grassland		
210	USA	Chew, R.M., et al.	1965	34.00	-112.00	+	131	.	.	124	.	.	.		<i>Larrea tridentata</i>	
742	India	Choudhuri, G.N., et al.	1979	25.38	83.57	?	176	90	266	126	.	.	.	Grassland / mixed		
741	India	Choudhuri, G.N., et al.	1979	25.27	83.33	?	188	126	314	149	.	.	.	Grassland / mixed	<i>Lynodom</i> ; <i>Sporobolus</i> ; <i>Bothrischloa</i> ;	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
593	Egypt	CIMMYT *	1971	30.00	31.00	+	.	.	2910	1382	.	.	.	Crops	Zea mays	
471	Peru	CIMMYT *	1971	-12.00	-75.00	+	2580	.	.	2451	.	.	.	Crops	Zea mays	
2389	Romania	Coldea, G., et al.	1978	47.83	24.83	?	660	.	.	627	.	2	1250	Forest	Pinus mugo	Ranker
113	USA	Cole et al. *	1978	47.87	-122.95	?	1436	363	1799	855	.	9.8	1364	Forest	Pseudotsuga menziesii; Tsuga heterophylla	
467	Antarctica	Collins *	1975	-60.00	-45.00	+	.	.	900	428	.	.	.	Tundra	Acer rubrum var. Drummondii	
1322	USA	Conner, Day *	1976	.	.	.	1574	.	.	1495	.	.	.	.	Taxodium-Nyssa	
1321	USA	Conner, Day *	1976	.	.	.	1140	.	.	1083	.	.	.	.	Triticum vulgare	
357	Mexico	Cooper, J.P.	1975	27.50	-109.50	•	1830	.	.	1739	.	.	.	Crops	Medicago sp.	
363	USA	Cooper, J.P.	1975	38.50	-121.83	?	.	.	2760	1311	.	.	.	.	Medicago sp.	
364	USA	Cooper, J.P.	1975	36.83	-119.83	?	.	.	2970	1411	.	.	.	.	Medicago sp.	
365	USA	Cooper, J.P.	1975	47.00	-98.00	+	.	.	1250	594	.	.	.	.	Beta vulgaris	
355	USA	Cooper, J.P.	1975	36.83	-121.67	?	.	.	4240	2014	.	.	.	Crops	Beta vulgaris	
359	USA	Cooper, J.P.	1975	46.20	-119.77	?	.	.	3200	1520	.	.	.	Crops	Oryza sativa	
361	USA	Cooper, J.P.	1975	38.50	-121.75	?	.	.	2240	1064	.	.	.	Crops	Solanum tuberosum	
353	USA	Cooper, J.P.	1975	38.00	-121.33	?	.	.	2200	1045	.	.	.	Crops	Elaeis guineensis (oil palm)	
798	Malaysia	Corley, R.H., et al.	1971	4.00	102.00	+	2940	.	.	2793	.	.	.	Crops	Tephrosia; Arisida; Schoenfeldia;	
2454	Senegal	Comet, A.	1981	15.33	-15.58	?	331	.	.	314	.	.	334	.	Zornia; Erafrostis;	
2453	Senegal	Comet, A.	1981	15.33	-15.55	?	190	.	.	181	.	.	327	.	Agropyron; Koeleria	Heavy clay brown steppe soil
59	Canada	Coupland *	1972	50.70	-107.72	?	391	600	991	471	.	.	.	Grassland	Agropyron; Koeleria	
244	Canada	Coupland, R.T.	1973	54.00	-105.00	+	252	410	662	314	.	.	.	Grassland	Agropyron; Koeleria	
198	USA	Crow, T.R.	1978	45.42	-89.17	?	887	.	.	843	.	5.3	800	Forest	Digitaria decumbens	Acid loamy till - acid sandy loam till
9264	Columbia	Crowder, L.V., et al.	1964	3.50	-76.50	*	.	.	5060	2404	F	.	.	Pasture	Zea mays	
354	USA	Cuany, R.L., et al.	1972	39.17	-108.75	+	2660	.	.	2527	I	.	.	Crops	Zea mays	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
700	India	Dabadghao, P.M., et al.	1970	25.43	78.58	?	334	.	.	317	.	.	.		Heteropogon	
701	India	Dabadghao, P.M., et al.	1970	25.43	78.58	?	556	.	.	528	.	.	.		Heteropogon	
393	USA	Dahlmann, R.C., et al.	1965	38.50	-93.50	*	.	429	.	408	.	.	.	Grassland		
779	USSR	Danilov, D.N.	1958	67.50	56.00	*	266	.	.	253	.	.	.	Tundra	<i>Betula nana</i>	
780	USSR	Danilov, D.N.	1958	67.50	56.00	*	305	.	.	290	.	.	.	Tundra	<i>Salix glauca</i> ; <i>S. lanata</i>	
246	USA	Daubenmire, R.	1970	46.00	-123.00	+	129	.	.	123	.	.	.	Grassland	<i>Bromus tectorum</i>	
245	Costa Rica	Daubenmire, R.	1972	10.40	-85.10	+	1387	.	.	1318	.	.	1926	Grassland / savanna	<i>Hyparrhenia rufa</i>	silty clay loam
398	USA	De La Cruz, A.A.	1974	30.33	-88.50	?	1484	.	.	1410	.	.	.	Wetland	<i>Distichlis spicata</i>	
401	USA	De La Cruz, A.A.	1974	30.33	-89.67	?	1697	.	.	1612	.	.	.	Wetland	<i>Juncus roemerianus</i>	
272	USA	De La Cruz, A.A.	1974	30.33	-89.00	*	1079	.	.	1025	.	.	.	Wetland	<i>Juncus</i> ; <i>Spartina</i> ; <i>Scirpus</i> ; <i>Distichlis</i>	
394	USA	De La Cruz, A.A.	1974	30.33	-89.67	?	2330	.	.	2214	.	.	.	Wetland	<i>Phragmites communis</i>	
395	USA	De La Cruz, A.A.	1974	30.33	-89.67	?	600	.	.	570	.	.	.	Wetland	<i>Sagittaria lancifolia</i>	
402	USA	De La Cruz, A.A.	1974	30.33	-89.67	?	1056	.	.	1003	.	.	.	Wetland	<i>Scirpus robustus</i>	
396	USA	De La Cruz, A.A.	1974	30.33	-88.50	?	1964	.	.	1866	.	.	.	Wetland	<i>Spartina alterniflora</i>	
397	USA	De La Cruz, A.A.	1974	30.33	-88.50	?	1089	.	.	1035	.	.	.	Wetland	<i>Spartina alterniflora</i> (short form)	
400	USA	De La Cruz, A.A.	1974	30.33	-89.67	?	2190	.	.	2081	.	.	.	Wetland	<i>Spartina cynosuroides</i>	
399	USA	De La Cruz, A.A.	1974	30.33	-89.67	?	1922	.	.	1826	.	.	.	Wetland	<i>Spartina patens</i>	
146	USA	De La Cruz, A.A., et al.	1977	30.25	-89.33	?	.	1360	.	1292	.	.	.	Wetland	<i>Juncus roemerianus</i>	
802	Java	De Vries, C.A., et al.	1967	-8.83	110.00	*	4100	.	.	3895	.	.	.	Crops	<i>Manihot esculenta</i>	
65	USA	Dennis, et al.	1972	71.30	-156.67	?	.	.	130	62	.	.	.	Grassland	<i>Dupontia fischeri</i> ; <i>Carex aquatilis</i> ; <i>Eriophorum angustifolium</i>	
181	USA	Dix, R.L.	1960	47.50	-102.00	*	183	.	.	174	.	.	.	Grassland	<i>Stipa</i> ; <i>Carex</i>	
2333	USSR	Djhalilov, K.G.	1981	38.83	48.52	+	858	.	.	815	.	10	700	Forest	<i>Quercus castaneifolia</i> ; <i>Zelkova</i> ; <i>Parrotia</i>	Subtropical yellow soils



Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
2397	Romania	Donita, N., et al.	1981	44.90	28.72	+	627			596		10.2	500	Forest	<i>Quercus pedunculifolia</i> ; <i>Acer</i> ; <i>Brachypodium</i> ;	Leached chernozem
2396	Romania	Donita, N., et al.	1981	44.90	28.72	+	438			416		10.6	480	Forest	<i>Quercus pubescens</i> ; <i>Cotinus</i> ; <i>Galium</i> ;	Rendzina
265	USA	Doss, B.D., et al.	1966						2210	1050				Pasture	<i>Cynodon dactylon</i>	
1016	Ireland	Doyle, G.J.	1973	54.25	-9.75	?	176	162	338	161				Wetland / bog	<i>Schoenus nigricans</i> ; <i>Molinia coerulea</i> ; <i>Calluna vulgaris</i> ; <i>Erica tetralix</i> ; <i>Sphagnum</i>	
1089	Ireland	Doyle, G.J.	1973	53.00	-8.00	+	1083	580	1663	790				Wetland / meadow	<i>Festuca arundinacea</i> ; <i>Trifolium repens</i> ; <i>Ranunculus repens</i>	
1091	USSR	Drozдов, A.V.	1971	54.57	38.22	?			840	399				Forest		
164	USA	Duckworth	1975	36.67	-121.67	?			4240	2014				Crops	<i>Beta vulgaris</i>	
221	USA	Durand, J.B., et al.	1972	40.00	-74.00	+			369	175				Wetland / salt-marsh	Angiosperm	
691	Indonesia	Dutch Soil Monitoring Station *	1937	-6.58	106.78	?			6520	3097				Crops	<i>Ipomoea batatas</i> (yam)	
692	Indonesia	Dutch Soil Monitoring Station *	1937	-6.58	106.78	?	1800	2300	4100	1948				Crops	<i>Manihot esculenta</i>	
693	Indonesia	Dutch Soil Monitoring Station *	1937	-6.58	106.78	?			2000	950				Crops	<i>Zea mays</i>	
1043	Belgium	Duvigneaud et al. *	1967	51.17	5.00	*	1080	100	1180	561		8.6	850	Forest	<i>Quercus robur</i> ; <i>Fraxinus excelsior</i> ; <i>Corylus avelana</i> ; <i>Carpinus betulus</i>	Pseudogley
2153	Belgium	Duvigneaud, P.	1968	50.15	5.28	?	1080	100	1180	561				Forest	<i>Quercus</i> ; <i>Corylus</i> ; <i>Carpinus</i> ; <i>Fraxinus</i>	
2139	Belgium	Duvigneaud, P.	1971	50.15	5.28	?			1430	679				Forest	<i>Corylus</i> ; <i>Quercus</i> ; <i>Fraxinus</i>	
1005	Belgium	Duvigneaud, P.	1971	51.17	5.00	*	1200	135	1335	634				Forest	<i>Corylus</i> ; <i>Carpinus</i> ; <i>Quercus</i> ; <i>Fraxinus</i>	Pseudogley; base-rich clay; pH 6.2
1003	Belgium	Duvigneaud, P.	1971	50.58	4.53	?	1013	235	1248	593				Forest	<i>Crataegus</i> ; <i>Quercus</i>	Magnesium; clay pseudogley; pH 5.2
1004	Belgium	Duvigneaud, P.	1971	50.07	4.33	?	1083	233	1316	625				Forest	<i>Fagus</i> ; <i>Acer</i> ; <i>Quercus</i> ; <i>Carpinus</i>	Rendzina; Ca-rich clay; pH 6.4-7.4

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
973	Belgium	Duvigneaud, P.	1971	50.17	5.00	*	910	218	1202	571				Forest	Quercus; Betula	Acidic humus
1002	Belgium	Duvigneaud, P.	1971	50.17	5.00	*	851	160	1011	480				Forest	Quercus; Betula	Podsol pseudogley; pH 3.5
987	Belgium	Duvigneaud, P.	1971	49.75	5.00	*	1279	226	1505	715				Forest / deciduous	Quercus; Corylus	Mull forestier pH 5.4
2137	Belgium	Duvigneaud, P., et al.	1969	50.07	4.37	?	1220	213	1433	681				Forest		
1036	USSR	Dykyjova, D.	1971	49.17	14.78	?			3416	1623				Grassland	Typha angustifolia; Phragmites communis; Scirpus lacustris	
706	USSR	Dylis, N.	1971	55.50	37.75	?	1235			1173				Forest	Quercus; Picea; Pilosae-Caricosum	
115	USA	Edmonds, R.L.	1978	44.25	-122.33	?	193	19	212	101		7.5	2313	Forest	Pseudotsuga menziessii; Tsuga heterophylla	Very poor soil
928	New Guinea	Edwards, P.J.	1977	-6.00	145.18	*	2000	350	2350	1116			3690	Forest / lower montane rainforest		Humic brown clay
1381	New Guinea	Edwards, P.J.	1977	-6.00	145.18	*			635	302		13	4000	Forest / lower montane rainforest		Humic brown clay
940	New Zealand	Egunjobi, J.K.	1967	-41.00	175.00	+	1300			1235						
943	New Zealand	Egunjobi, J.K.	1967	-41.00	175.00	+			2000	950				Forest	Ulex europaeus	
2458	Nigeria	Egunjobi, J.K.	1978	7.17	3.87	?	1192			1132			1200		Terminalia superba	
2043	Nigeria	Egunjobi, J.K. *	1975	7.17	3.87	?			1900	903		19.5	1800		Pinus caribaea	
972	Denmark / Greenland	Elkington, T.T.; Jones, B.M.G.	1974	61.10	-45.97	+	198	9	207	98			700	Forest / scrub woodland	Betula pubescens	Moranic. Sand infills
2412	Germany	Ellenberg, H.	1981	51.75	9.60	+	1224			1163		6.3	1063	Forest / broadleaf	Fagus sylvatica	Acid brown earth
2411	Germany	Ellenberg, H.	1981	51.75	9.57	+	1008			958		6.1	1063	Forest / broadleaf	Fagus sylvatica	Acid brown earth
2410	Germany	Ellenberg, H.	1981	51.82	9.58	+	1123	250	1373	652		6.1	1063	Forest / broadleaf	Fagus sylvatica	Acid brown earth
2415	Germany	Ellenberg, H.	1981	51.75	9.58	+	849			807		5.9	1063	Forest / needleleaf	Picea abies	Acid brown earth
2413	Germany	Ellenberg, H.	1981	51.82	9.58	+	936			889		5.9	1063	Forest / needleleaf	Picea abies	Acid brown earth
2414	Germany	Ellenberg, H.	1981	51.73	9.57	+	747			710		5.9	1063	Forest / needleleaf	Picea abies	Acid brown earth

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
594	Sierra Leone	Enyi, A.B.C.	1972	9.00	-12.00	+	.	.	3330	1582	.	.	.	Crops	Manihot esculenta	
2378	USSR	Fiala, K.	1979	49.72	15.97	?	810	.	.	770	.	6.3	786	Grassland	Nardus; Festuca; Sauguisorba;	Humus gley podsol
165	Mexico	Fisher, F.L., et al.	1959	27.50	-112.00	*	.	.	1830	869	.	.	.	Crops	Triticum vulgare	
356	USA	Fisher, F.L., et al.	1959	30.50	-96.33	+	6940	.	.	6593	IF	.	.	Pasture	Cynodon dactylon	
1031	UK	Ford, E.D., et al.	1977	51.25	0.67	?	1000	.	.	950	.	.	760		Castanea sativa; Ground Vegetation	Low organic matter; poorly drained
1735	UK	Forrest *	1970	.	.	.	168	183	.	167	.	.	.		Calluna vulgaris	
1734	UK	Forrest *	1970	.	.	.	407	228	.	302	.	.	.		Calluna; Empetrum; Eriophorum	
1038	UK	Forrest, G.I.	1971	50.82	-1.92	?	168	.	.	160	.	.	.			
1032	UK	Forrest, Smith *	1975	50.82	-2.25	?	.	.	659	313	.	.	.	Wetland / bog	Calluna; Sphagnum; Eriophorum	
1018	UK	Forrest, Smith *	1975	54.75	-2.50	?	530	211	741	352	.	.	.	Wetland / bog	Eriophorum angustifolium; Trichophorum caespitosum; Sphagnum papillosum; other species	
167	USA	Fribourg, H.A., et al.	1971	36.67	-86.75	*	2314	.	.	2198	F	.	.	Pasture	Cynodon dactylon	Silt loam
27	USA	Fujimori *	1971	45.03	-120.00	*	.	.	3620	1720	?	10.3	2995	Forest	Tsuga heterophylla	
2313	USA	Gallagher, J.L., et al.	1980	31.42	-81.25	?	2400	.	.	2280	.	.	.	Wetland / salt-marsh	Spartina; Juncus	
2536	USA	Gessel, S.P.	1981	47.38	-121.95	+	1436	363	1799	855	.	9.8	1360	Plantation	Pseudotsuga menziesii	Typic haplorthod; gravelly sandy loam
2062	USA	Gholz, H.L.	1980	44.00	-120.00	+	110	.	.	105	.	.	.		Juniperus occidentalis	
547	Chad	Gillet, H.	1960	13.83	18.58	?	165	.	.	157	.	.	320			
548	Chad	Gillet, H.	1967	16.83	21.17	?	125	.	.	119	.	.	320			
555	Chad	Gillet, H.	1967	16.00	19.50	*	37	.	.	35	.	.	320			
551	Chad	Gillet, H.	1967	17.00	21.83	?	.	.	325	154	.	.	320	Savanna		
596	Chad	Gillet, H.	1967	.	.	.	.	.	70	33	.	.	.	Savanna		

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
156	USA	Golley, F.B., et al.	1962	18.25	-66.50	?	.	.	930	442	.	.	.	Forest / tropical mangrove	Rhizophora mangle	Sod; marsh
633	USSR	Golubev, V.N.	1972	44.83	35.00	*	437	.	.	415	.	5.7	1000	Grassland	Bromus riparius; Carex prumilis; Festuca sulcata	Leached chernozem-type
2532	Canada	Gordon, A.G.	1981	45.28	-78.28	+	990	.	.	941	.	4	1243	Forest	Picea; Tsuga; Abies; Thuya;	Orthic ferro-humic podsol
2534	Canada	Gordon, A.G.	1981	45.23	-78.38	+	451	.	.	428	.	4	1243	Forest	Picea; Pinus; Tsuga;	Lithic ferro-humic podsol
2531	Canada	Gordon, A.G.	1981	45.28	-78.27	+	383	.	.	364	.	4	1243	Forest	Picea; Tsuga; Abies;	Hydic humisol
2533	Canada	Gordon, A.G.	1981	45.53	-78.82	+	870	.	.	827	.	4	1243	Forest	Picea; Tsuga; Acer; Abies;	Orthic ferro-humic podsol
2331	USSR	Goryshina, T.K.	1981	50.63	35.97	+	975	.	.	926	.	6	537	Forest / steppe	Quercus robur; Tilia; Acer;	Grey and dark grey loam / sandy loam
2330	USSR	Goryshina, T.K.	1981	50.63	35.97	+	964	.	.	916	.	6	537	Forest / steppe	Quercus robur; Tilia; Acer; Euonymus;	Grey and dark grey loam / sandy loam
444	USA	Gosz, J.R.	1980	35.60	-105.92	?	574	.	.	545	.	.	.	Forest	Populus tremuloides	
1109	Austria	Grabherr, G., et al.	1980	47.17	11.00	*	85	75	160	76	.	.	807	Tundra / alpine		Shallow profile, brown earth; pH 4.5
2306	USA	Gray, J.T., et al.	1981	34.33	-119.33	?	255	.	.	242	.	.	.	Mediterranean / scrub	Ceanothus megacarpus	
1331	USA	Gray, J.T., et al.	1981	.	.	.	255	.	.	242	.	16.2	478	Mediterranean / scrub	Salvia; Artemisia californica	
2478	USA	Grier, C.C., et al.	1981	47.32	-121.58	?	645	1182	1827	868	.	5.4	2730		Abies amabilis	Typic spodosol
2479	USA	Grier, C.C., et al.	1981	47.32	-121.58	?	455	1223	1678	797	.	5.4	2730		Abies amabilis	Typic spodosol
58	USA	Grier, Logan *	1977	44.00	-122.00	+	759	271	1030	489	.	8.5	2300	Forest	Pseudotsuga; Polystichum	Typic dystrochrepts
358	USA	Guitard, A.A., et al.	1965	64.82	-147.87	?	.	.	450	214	.	.	.	Crops	Triticum vulgare	
2351	India	Gupta, S.R., et al.	1979	25.45	78.58	?	.	439	.	417	.	.	.		Themeda quadrivalis	
2452	Zimbabwe	Guy, P.R.	1981	-18.17	28.23	+	70	.	.	67	.	22.2	.	Forest / woodland	Colophospermum; Brachystegia	
2310	Canada	Haag, R.W.	1974	69.45	-133.03	?	.	.	490	233	.	.	.	Tundra	Betula; Empetrum	Orthic gleysol
2311	Canada	Haag, R.W.	1974	.	.	.	.	.	295	140	.	.	.	Tundra	Carex; Eriophorum	Peat polygon soil

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
271	USA	Harris et al. *	1975	36.00	-84.00	+	.	.	1669	793	.	13.3	1265	Forest	Quercus spp.; Liriodendron tulipifera	Deep alluvial silt loam
1231	USA	Harris, W.F., et al.	1973	36.00	-85.00	+	331	750	1081	513	.	.	.	Forest	Liriodendron tulipifera; Quercus	Emory cherty silt loam; fullerton silt lo
240	Canada	Hatcher, Mann *	1975	44.75	-63.17	?	.	.	710	337	.	.	.	Wetland / salt-marsh	Spartina alterniflora	
2402	Finland	Havas, P.	1981	66.37	29.00	+	421	20	441	209	.	0	500	Forest	Picea excelsa; Vaccinium;	podsol; poorly drained
1085	UK	Heal et al. *	1975	54.75	-2.25	?	.	.	659	313	.	.	.	Wetland / bog	Calluna vulgaris; Sphagnum; Eriophorum	
1061	UK	Heal, O.W.	1972	54.75	-2.25	?	.	.	635	302	.	.	1850	Wetland / bog	Calluna; Eriophorum; Sphagnum	
934	Australia	Henzell, E.F.	1963	.	.	.	.	.	2440	1159	F	.	.	Pasture	Paspalum commersoni; P. plicatulum	
933	Australia	Henzell, E.F.	1968	.	.	.	.	.	2350	1116	.	.	.	Pasture	Chloris gayana	
935	Australia	Henzell, E.F.	1968	.	.	.	.	.	3000	1425	.	.	.	Pasture	Pennisetum clandestinum	
982	Sweden	Holmen, H.	1964	59.33	19.00	*	1	.	.	-999	E	5	500		Picea	Highly humified peat
9027	Nigeria	Hopkins, B.	1965	7.42	3.55	+	680	.	.	646	.	27.9	1327			
196	USA	Hopkinson, C.S., et al.	1978	29.50	-89.50	*	.	.	2932	1393	.	20	1500	Wetland / salt-marsh		
2316	UK	Hughes, M.K.	1970	54.65	-1.43	?	270	.	.	257	.	.	.	Forest	Rubus; Dryopteris; Betula; Alnus	
1696	UK	Hughes, M.K.	1971	55.00	-1.50	*	713	.	.	677	.	.	.	Forest	Alnus; Betula	
22	USA	Hunter, R.B.	1975	36.50	-115.50	*	213	.	.	202	.	.	.			
33	USA	Hunter, R.B.	1975	36.67	-116.00	*	56	.	.	53	.	.	.			
2263	Sweden	Hytteborn, H.	1975	60.15	17.82	?	774	.	.	735	.	5.5	566		Acer; Betula; Populus; Quercus; Tilia	
2264	Sweden	Hytteborn, H.	1975	60.15	17.32	?	483	.	.	459	.	5.5	566		Betula spp.	Calcareous glacial clay
2265	Sweden	Hytteborn, H.	1975	60.15	17.32	?	723	.	.	687	.	5.5	566		Quercus robur; Corylus; Betula	Brown earth mull/moder
2056	USA	Irving, R.S., et al.	1980	34.50	-91.55	+	623	.	.	592	.	17.3	1310	Grassland	See Table 2	Silt loam

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
2057	USA	Irving, R.S., et al.	1980	34.55	-91.42	+	1131	.	.	1074	.	17.3	1310	Grassland	See Table 2	Silt loam
2058	USA	Irving, R.S., et al.	1980	34.55	-91.55	+	628	.	.	597	.	17.3	1310	Grassland	See Table 2	Silt loam
784	USSR	Isayev, Y.M.	1957	40.50	47.50	*	230	.	.	219	.	.	.	.	Artemisia sp.; Hanseniana	
2352	India	Jain, S.K.	1980	23.83	78.67	?	1236	937	2173	1032	.	24.8	1250	Grassland		
2214	India	Jain, S.K., et al.	1972	23.83	78.67	?	.	1284	.	1220	.	.	1250		Heteropogon contortus	"page 132"
2400	Hungary	Jakucs, P.	1981	47.90	20.47	+	715	.	.	679	.	9.9	582	Forest	Quercus petraea; Q. cerris; Cornus; Acer;	Brown forest soil
1033	Poland	Jankowska, K.	1971	50.00	19.92	?	770	.	.	732	.	.	.		Arrhenatherum elatius	
469	Antarctica	Jenkin *	1975	-54.50	158.95	?	1189	2110	3299	1567	?	.	.	Tundra		
239	USA	Jervis, R.A.	1969	40.85	-74.37	+	1491	.	.	1416	.	.	.	Wetland / marsh	Carex; Juncus; Peltandra; Polygonum; Sagittaria; Dryopteris	
236	USA	Jervis, R.A.	1969	40.85	-74.37	+	1699	.	.	1614	.	.	.	Wetland / marsh	Carex; Rosa; Spiraea; Viburnum; Alnus	
238	USA	Jervis, R.A.	1969	40.85	-74.37	+	1904	.	.	1809	.	.	.	Wetland / marsh	Typha; Rumex; Impatiens; Polygonum; Peltandra	
237	USA	Jervis, R.A.	1969	40.85	-74.37	+	1547	.	.	1470	.	.	.	Wetland / marsh	Zizania aquatica; Sparganium eurycarpum; Peltandra virginica	
590	Ghana	John, D.M.	1973	6.15	-0.92	+	.	.	2500	1188	.	.	1650	Forest / tropical moist semi-deciduous	Diospyros spp.	silty clay loam latosol
73	USA	Johnsen, Risser *	1974	35.17	-97.00	*	1260	230	1490	708	.	.	862	Forest		Sandy podsollic soil over sandstone
10	USA	Johnson, M.	1970	38.17	-76.50	*	1207	.	.	1147	.	.	.	Wetland	Spartina alterniflora	
220	USA	Johnson, M.	1970	38.17	-76.55	*	.	.	1218	579	.	.	.	Wetland / salt-marsh	Angiosperm	
79	USA	Johnson, P.L., et al.	1970	71.30	-156.65	?	82	100	182	86	.	.	.	Tundra		
949	Australia	Jones, R.	1968	-30.00	134.00	+	308	5828	6136	2915	?	.	.	Wetland / heath		Deep sandy soils; low P
936	Australia	Jones, R.L., et al.	1968	.	.	.	.	.	3160	1501	IF	.	.	Pasture	Chloris gayana; Setaria sphacelata	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
937	Australia	Jones, R.L., et al.	1968						3180	1511	1 F			Pasture	<i>Setaria sphacelata</i> ; <i>Paspalum</i> spp.	
2027	Finland	Kallio, P.	1975	69.75	27.02	?	680			646		-2.1	375	Forest	<i>Pinus sylvestris</i>	
2329	USSR	Karpov, V.G.	1981	56.50	32.67	+	530	115	645	306		3.4	640	Forest / taiga	<i>Picea abies</i> ; <i>Vaccinium</i> ;	Clayed silty loam weak podsol
2322	USSR	Kazimirow	1981	62.00	34.00	+	287	51	338	161		2.2	650	Forest / boreal evergreen	<i>Picea abies</i>	Humus iron podsol
2323	USSR	Kazimirow	1981	62.00	34.00	+	445	82	527	250		2.2	650	Forest / boreal evergreen	<i>Picea abies</i>	Humus iron podsol
2324	USSR	Kazimirow	1981	62.00	34.00	+	570	104	604	287		2.2	650	Forest / boreal evergreen	<i>Picea abies</i>	Humus iron podsol
2325	USSR	Kazimirow	1981	62.00	34.00	+	617	116	733	348		2.2	650	Forest / boreal evergreen	<i>Picea abies</i>	Humus iron podsol
2326	USSR	Kazimirow	1981	62.00	34.00	+	621	110	731	347		2.2	650	Forest / boreal evergreen	<i>Picea abies</i>	Humus iron podsol
2327	USSR	Kazimirow	1981	62.00	34.00	+	534	93	527	250		2.2	650	Forest / boreal evergreen	<i>Picea abies</i>	Humus iron podsol
2328	USSR	Kazimirow	1981	62.00	34.00	+	350	65	415	197		2.2	650	Forest / boreal evergreen	<i>Picea abies</i>	Humus iron podsol
224	USA	Keefe, C.W., et al.	1973	38.00	-75.50	*			558	265				Wetland / marsh		
2143	Belgium	Kestemont, P.	1970	49.93	4.88	?	814			773					<i>Quercus robur</i> ; <i>Betula pendula</i>	
2141	Belgium	Kestemont, P.	1970	49.93	4.88	?	908			863					<i>Quercus robur</i> ; <i>Q. petraea</i> ; <i>Betula pendula</i>	
1014	Belgium	Kestemont, P.	1970				910	0		432					<i>Quercus</i> ; <i>Betula</i> ; <i>Sorbus</i> ; <i>Corylus</i>	
1011	Belgium	Kestemont, P.	1971	50.17	5.00	*	540			513					<i>Quercus</i> ; <i>Betula</i> ; <i>Corylus</i> ; <i>Sorbus</i>	
1013	Belgium	Kestemont, P.	1971	49.83	5.00	*	914			868					<i>Quercus</i> ; <i>Betula</i> ; <i>Fagus</i> ; <i>Populus</i>	Silty loam on schist; pH 4.3
2140	Belgium	Kestemont, P.	1973	50.03	5.25	?	644			612					<i>Filipendula</i> ; <i>Fagus</i> ; <i>Alnus</i> ; <i>Festuca</i>	
2492	USA	Keyes, M.R., et al.	1981	46.00	-121.33	?	730	810	1540	732			1000		<i>Pseudotsuga menziesii</i>	Everett series soil

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
2493	USA	Keyes, M.R., et al.	1981	46.00	-121.33	?	1370	410	1780	846			1000		<i>Pseudotsuga menziesii</i>	Wilkeson series soil
644	Japan	Kimura, M.	1960	32.50	131.00	*			2060	979					Distilium; Shiia; Cyclobalanopsis; Camelia	Volcanic on granite and sandstone weath.
749	Malaysia	Kira, T.	1978	2.98	102.30	+	2114	553	2667	1267		25	2000	Forest / lowland rainforest	Shorea; Dipterocarpus	
750	Thailand	Kira, T., Shidei, T.	1967	7.58	99.80	+	2923	55	2978	1415		27.2	2696	Forest / tropical rainforest	Padbruggea pubescens; Alstonia spathulata; Eugenia clarkeana	Deep; sandy loam soil of granitic origin
67	USA	Kirby, C.J., et al.	1976	29.30	-90.15	+	1984			1885				Wetland / salt-marsh	<i>Spartina alterniflora</i>	
274	USA	Kirby, C.J., et al.	1976	29.30	-90.15	+	1176			1117				Wetland / salt-marsh	<i>Spartina alterniflora</i>	
2342	Japan	Kitazawa, Y.	1981	36.67	138.50	+	610	140	750	356		4.2	1455	Forest / subalpine	<i>Tsuga diversifolia</i> ; <i>Abies</i> ; <i>Betula</i>	Wet podsolic soil
247	USA	Klippel, Costello *	1960	39.50	-105.50	*			900	428				Grassland / shortgrass prairie		
270	USA	Klopatek, J.M.	1975	43.52	-88.42	?			3500	1663		7.6	714	Wetland / freshwater marsh		
182	USA	Kucera *	1967	38.00	-92.50	*	500			475					<i>Andropogon gerardi</i>	
248	USA	Kucera, C.L., et al.	1967	38.67	-94.00	*	482	547	1029	489				Grassland / tall-grass prairie		
264	USA	Kuramoto, R.T., Bliss, L.C.	1970	47.67	-123.50	?	113			107				Grassland / meadow	<i>Festuca idahoensis</i> ; <i>Delphinium glareosum</i>	Entisol/inceptisol (spodosol)
297	USA	Kuramoto, R.T., et al.	1970	47.00	-124.00	+	356			338				Grassland / meadow		
63	USA	Kuramoto, R.T., et al.	1970	47.67	-123.67	?		325		309				Grassland / meadow	<i>Artemesia</i> ; <i>Phacelia</i>	
296	USA	Kuramoto, R.T., et al.	1970	47.00	-124.00	+	156			148				Grassland / meadow	<i>Carex nigricans</i>	
278	USA	Kuramoto, R.T., et al.	1970				252			239				Grassland / meadow	<i>Festuca idahoensis</i> ; <i>Arenaria</i> ; <i>Lupinus</i>	Entisol/inceptisol (spodosol)
64	USA	Kuramoto, R.T., et al.	1970	47.67	-123.67	?		750		713				Grassland / meadow	<i>Lupinus</i> ; <i>Polygonum</i>	



Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
62	USA	Kuramoto, R.T., et al.	1970	47.67	-123.67	?		1000		950				Grassland / meadow	Saussurea; Viola; Hydrophyllum	
273	USA	Kuramoto, R.T., et al.	1970	47.67	-123.50	?	434			412				Grassland / meadow	Saussurea americana; Heracleum lanatum; Hydrophyllum occidentale	Entisol/inceptisol (spodosol)
699	USSR	Kurochkina et al. *	1972	46.82	74.98	?			152	72				Desert / arid shrub steppe	Ephedra lomatolepis; Calligonum alatiforme	
1182	USA	Lang, G.E.	1974	40.50	-74.57	?	1550			1473			1120	Forest	Quercus; Carya; Fraxinus	Silt-loam; moder
989	Austria	Larcher, W.	1977	47.22	11.33	?	108			103		0.5			Calluna; Vulgaris; Alectoria; Ochroleuca	Shallow profile; iron humic podsol
991	Austria	Larcher, W.	1977	47.22	11.33	?	317			301		2.2			Loiseleuria procumbens	Deep profile; iron humic podsol
990	Austria	Larcher, W.	1977	47.22	11.33	?	485			461		2			Vaccinium myrtillus	Deep profile; iron podsol
169	USA	Law *	1968	46.00	-119.77	?			3200	1520				Crops	Beta vulgaris	
1078	France	Lemee, G.	1978	48.40	2.70	?	476	80	556	264		10.2	697	Forest	Fagus sylvatica	
2395	France	Lemee, G.	1981	48.42	2.63	+	440			418		10.2	674	Forest / temperate deciduous	Fagus sylvatica; Brachypodium	Leached soil
2448	Ivory Coast	Lemee, G.	1981	5.70	-4.10	+	1480			1406			1739		Dacryodes klaineana; Coula; Scottelia	Strongly unsaturated ferralitic schist
2449	Ivory Coast	Lemee, G.	1981	5.38	-4.03	+	1630			1549		26.2	2095		Turraeanthus africana; Dacryopes;	Strongly unsaturated ferralitic sandy
999	Germany	Lieth, H., et al.	1965	49.00	9.50	*			2600	1235		8.6	850	Forest	Populus hybrid	Alluvial sandy loam
2404	Sweden	Lindgren, L., et al.	1981	55.75	13.92	+	1060	170	1230	584		6	900	Forest	Fagus sylvatica; Deschampsia	podsol
2403	Sweden	Lindgren, L., et al.	1981	55.70	13.63	+	1670	230	1900	903		7	650	Forest	Fagus sylvatica; Mercurialis; Allium;	Brown forest soil (with gley horizon)
141	USA	Linthurst, R.A., et al.	1978	38.83	-75.33	*	2582			2453				Wetland / estuarine	Distichlis spicata; Juncus gerardii; Phragmites communis; Spartina patens	
140	USA	Linthurst, R.A., et al.	1978	31.50	-81.25	*	4128			3922				Wetland / estuarine	Distichlis spicata; Spartina patens; S. cynosuroides; Sporobolus virginicus	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
142	USA	Linthurst, R.A., et al.	1978	44.40	-68.25	*	2668	.	.	2535	.	.	.	Wetland / estuarine	<i>Juncus</i> spp.; <i>Spartina</i> spp.	
453	USA	Little, S., et al.	1959	18.00	-67.00	+	.	.	4860	2309	I F	.	.	Pasture	<i>Panicum maximum</i>	
454	USA	Little, S., et al.	1959	18.00	-67.00	+	.	.	6650	3159	I F	.	.	Pasture	<i>Pennisetum purpureum</i>	
719	USSR	Litvinova, N.P.	1972	41.60	69.72	?	.	.	66	31	.	.	.	Desert / montane		
723	USSR	Litvinova, N.P.	1972	39.42	70.37	?	.	.	1708	811	.	.	.	Desert / mountain shrubs	<i>Amygdalus ulmifolia</i> ; <i>Crataegus turkestanica</i>	
718	USSR	Litvinova, N.P.	1972	38.55	68.58	?	.	.	1900	903	.	.	.	Desert / thyme	<i>Agropyron trichophonum</i> ; <i>Perovskia scrophularifolia</i>	
731	USSR	Litvinova, N.P.	1972	38.55	68.58	?	.	.	889	422	.	.	.	Savanna / semi-savanna	<i>Poa bulbosa</i> ; <i>Agropyrum trichophorum</i>	
409	Antarctica	Longton, R.E.	1970	-60.72	-50.00	*	.	.	342	162	.	.	.	Tundra		
956	Antarctica	Longton, R.E.	1970	-65.25	-65.00	*	.	.	421	200	.	.	.	Tundra	<i>Polytrichum alpestre</i>	
957	Antarctica	Longton, R.E.	1970	-54.28	-37.00	*	.	.	462	219	.	.	.	Tundra	<i>Polytrichum alpestre</i>	
958	Antarctica	Longton, R.E.	1970	-60.72	-45.00	*	.	.	342	162	.	.	.	Tundra	<i>Polytrichum alpestre</i>	
267	USA	Loomis, R.E., et al.	1963	20.00	-155.00	+	.	.	6410	3045	F	.	.	Crops	<i>Saccharum officinale</i>	
360	USA	Loomis, R.S., et al.	1963	32.67	-115.67	?	.	.	3380	1606	F	.	.	Crops	<i>Beta vulgaris</i>	
1079	France	Lossaint, P., et al.	1971	48.36	1.65	+	644	.	.	612	.	13.4	987			
2535	USA	Loucks, O.L., et al.	1981	43.03	-89.40	+	819	662	1481	703	.	6.9	777	Forest	<i>Quercus alba</i> ; <i>Prunus</i>	Silt loam
532	South Africa	Louw, A.J.	1968	-24.67	28.67	?	390	.	.	371	.	.	.			
80	USA	Madgwick, H.A.J.	1968	38.00	-81.00	+	1430	.	.	1359	.	.	.	Forest	<i>Pinus virginiana</i>	
983	Finland	Maelkoenen *	1975	60.52	23.88	+	333	145	478	227	.	3.7	545	Forest	<i>Pinus sylvestris</i>	podsol; fine sand moraine
984	Finland	Maelkoenen *	1975	61.67	24.32	?	487	166	653	310	.	2.9	576	Forest	<i>Pinus sylvestris</i>	podsol; coarse sand
985	Finland	Maelkoenen *	1975	60.52	23.85	?	633	209	842	400	.	3.7	545	Forest	<i>Pinus sylvestris</i>	podsol; fine sand moraine
436	USA	Mahall, B.E., et al.	1976	38.13	-122.37	+	.	.	958	455	.	.	.	Wetland / salt-marsh	<i>Salicornia virginica</i>	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
438	USA	Mahall, B.E., et al.	1976	38.13	-122.53	+			553	263				Wetland / salt-marsh	Salicornia virginica	
434	USA	Mahall, B.E., et al.	1976	38.13	-122.53	+			689	327				Wetland / salt-marsh	Spartina foliosa	
432	USA	Mahall, B.E., et al.	1976	38.13	-122.37	+			274	130				Wetland / salt-marsh	Spartina foliosa	
2392	Austria	Maier, R., et al.	1978	47.78	16.70	?	2685			2551	?				Phragmites communis	
2450	Zaire	Malaisse, F.	1981	-11.48	27.60	+	1110	150	1260	599		20.3	1273	Forest / miombo woodland	Marquesia macroura	Latosol
549	Senegal	Marel, Bourliere *	1962	16.67	-15.83	?	40			38			300			
1080	Greece	Margaris, N.S.	1978	37.97	23.72	?	412	310	722	343		18.2	416	Mediterranean / shrubland	Phrygana	
13	USA	Marshall, D.E.	1970	35.00	-76.00	+	1080			1026				Wetland / salt-marsh	Spartina alterniflora	
1021	UK	Mason, C.F., et al.	1975	52.58	1.00	*	1515			1439				Wetland	Typha angustifolia	
1023	UK	Mathews, C.P., et al.	1969	50.78	-2.33	?	293			278					Glyceria maxima	
873	USSR	Matreyeva, N.V., et al.	1975	75.50	110.00	*	126			120				Tundra		
744	India	Maurya, A.N.	1970						1359	646				Grassland / mixed		
475	Venezuela	Medina, E., et al.	1972	8.90	-67.40	+			2460	1169						
476	Venezuela	Medina, E., et al.	1972	10.00	-67.00	+			2340	1112				Forest / tropical evergreen cloud forest		
2416	Poland	Medwecka-Kornas, E.	1981	50.10	20.37	+	1006	124	1130	537		7.8	729	Forest / temperate deciduous forest	Quercus robur; Tilia; Carpinus;	Leached brown
566	Ivory Coast	Menaut, J-C., et al.	1979	6.22	-5.03	+	1890	1060	2950	1401			1300	Savanna / dense shrub		
569	Ivory Coast	Menaut, J-C., et al.	1979	6.22	-5.03	+	1540	2040	3580	1701			1300	Savanna / grass		
564	Ivory Coast	Menaut, J-C., et al.	1979	6.22	-5.03	+	830	1320	2150	1021			1300	Savanna / intermediate		
568	Ivory Coast	Menaut, J-C., et al.	1979	6.22	-5.03	+	920	1320	2240	1064			1300	Savanna / intermediate		

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
570	Ivory Coast	Menaut, J.-C., et al.	1979	6.22	-5.03	+	1545	1905	3450	1639	.	.	1300	Savanna / intermediate		
565	Ivory Coast	Menaut, J.-C., et al.	1979	6.22	-5.03	+	1420	1340	2760	1311	.	.	1300	Savanna / open shrub		
567	Ivory Coast	Menaut, J.-C., et al.	1979	6.22	-5.03	+	2080	1260	3340	1587	.	.	1300	Savanna / woodland		
275	USA	Mendelssohn, I.A., et al.	1976	37.92	-75.58	?	362	.	.	344	.	.	.	Wetland / salt-marsh	<i>Spartina alterniflora</i>	
276	USA	Mendelssohn, I.A., et al.	1976	37.33	-76.67	?	572	.	.	543	.	.	.	Wetland / salt-marsh	<i>Spartina alterniflora</i> ; <i>Distichlis spicata</i> ; <i>Spartina patens</i>	
277	USA	Mendelssohn, I.A., et al.	1976	.	.	.	563	.	.	535	.	.	.	Wetland / salt-marsh	<i>Spartina alterniflora</i> ; <i>S. cynosuroides</i> ; <i>Juncus</i> spp.	
2335	USSR	Merzoev, O.G.	1981	41.00	48.00	+	250	.	.	238	.	.	450	Forest	<i>Betula pendula</i> ; <i>Rosa</i>	
2336	USSR	Merzoev, O.G.	1981	41.00	48.00	+	410	.	.	390	.	.	450	Forest	<i>Betula pendula</i> ; <i>Rosa</i>	
2386	UK	Miller, et al.	1978	.	.	.	270	.	.	257	.	.	.	.	<i>Calluna vulgaris</i>	
941	New Zealand	Miller, R.B.	1963	-41.00	175.00	+	.	.	840	399	.	.	.	Forest	<i>Nothofagus truncata</i>	
959	New Zealand	Miller, R.B.	1971	-41.33	174.83	?	.	.	900	428	.	.	.	Forest / rainforest	<i>Nothofagus truncata</i>	
544	Algeria	Miroshnitchenko	1970	33.00	0.00	+	325	.	.	309	.	.	.	.	<i>Atriplex halimus</i> ; <i>Suaeda fruticosa</i> ; <i>Salsola tetrandra</i>	
689	India	Misra, R.	1970	25.30	83.17	?	.	.	780	371	.	.	.	Crops	<i>Zea mays</i>	
631	India	Misra, R.	1970	24.70	83.37	?	.	.	1296	616	.	.	1050	Forest	<i>Diospyros tomentosa</i> ; <i>Shorea robusta</i> ; <i>Terminalia</i>	Shallow and bright red
630	India	Misra, R.	1970	25.30	83.17	?	.	298	744	353	.	.	1050	Grassland		Sandy loam; alluvial deposit
836	India	Misra, R.	1972	25.30	83.17	?	.	.	2445	1161	.	.	.	.		
834	India	Misra, R.	1972	25.30	83.17	?	1500	.	.	1425	.	.	.	.	<i>Sterculiaurens</i> ; <i>Emblica officinales</i> ; <i>Anogeissus latifolia</i>	
835	India	Misra, R., et al.	1967	25.20	83.17	?	.	.	1296	616	.	.	.	Forest	<i>Shorea</i> sp.	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
383	USA	Mitsch, W.J.	1975	27.00	-81.00	+			416	198				Wetland / swamp		
389	USA	Mitsch, W.J.	1975	26.00	-81.00	+			192	91	?			Wetland / swamp		
390	USA	Mitsch, W.J.	1975	28.83	-82.33	?			600	285				Wetland / swamp		
1104	Denmark	Moeller, C.M., et al.	1954	56.00	9.00	+			1276	606				Plantation	<i>Fagus sylvatica</i>	
250	USA	Moir, W.H.	1969	40.00	-105.00	+	340			323			470	Grassland / mixed-grass prairie	<i>Andropogon</i> ; <i>Stipa</i>	
187	USA	Monk, C.D.	1973	35.05	-83.43	+	1198			1138				Plantation	<i>Pinus strobus</i>	
2460	Chile	Mooney, H.A.	1981	-33.07	-71.08	?	689			655					<i>Cryptocarya lithraea</i> ; <i>Kageneckia</i>	
2502	USA	Mooney, H.A.	1981				412	247		313						
1087	Ireland	Moore et al. *	1975	54.20	-9.75	?	361	162	523	248			1400	Wetland / bog		Peat
222	USA	Morgan, M.H.	1961	38.83	-75.00	*			445	211				Wetland / salt-marsh	Angiosperm	
1071	Austria	Moser et al. *	1977	46.98	11.07	?			30	14					<i>Ranunculus glacialis</i> ; <i>Oxryia dygna</i> ; <i>Geum</i>	
46	Canada	Muc *	1972	75.55	-84.67	?			46	22				Tundra		
147	Canada	Muc *	1973	75.55	-84.67	?	40	151	192	91				Tundra		
539	Ivory Coast	Mueller, D., Nielsen J.	1965	5.33	-4.17	+	1150	190	1340	637		26.9	1900	Forest / tropical rainforest	<i>Combretodendron</i> ; <i>Conopharyngia</i> ; <i>Funtumia</i> ; <i>Octoknema</i> ; <i>Strombosia</i>	pH 3.8-4.4; 1.8-2.3% organic matter (0-2 cm)
431	USA	Nemeth *	1973	35.33	-76.75	?	1316	272	1588	754		17.2	1410	Forest		Ultisols alfisols; fine loamy; thermic
2406	Sweden	Nihlgard, B.	1981	55.98	13.17	+	1540	240	1780	846		7	800	Forest	<i>Fagus</i> ; <i>Stelloria</i> ;	Acidic brown forest soil
2405	Sweden	Nihlgard, B.	1981	55.98	13.17	+	1370	260	1630	774		7	800	Forest	<i>Picea abies</i> ; <i>Oxalis</i> ; <i>Rubus</i>	Acidic brown forest soil
2249	Sweden	Nilsson, J.	1970	56.60	14.20	+	330	1100	1430	679			700		page 185	Brown earth
965	Australia	Noble, I.R.	1977	-32.12	139.37	?	50			48			180		<i>Atriplex vesicaria</i> ; <i>Maireana sedifolia</i> ; <i>Stipa nitida</i>	
268	USA	Nordfeldt, S.	1951	21.00	-156.60	*			4350	2066				Pasture	<i>Pennisetum purpureum</i>	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
954	Australia	Norman, M.J.T.	1963	-14.65	132.70	?	.	.	148	70	.	.	660	Grassland	Sorghum plumosum; Themeda australis; Chrysopogon fallax	
748	Japan	Numata, M.	1975	38.73	140.25	?	800	200	1000	475	.	9.8	2335		Miscanthus sinensis (Tallgrass)	
747	Japan	Numata, M.	1975	40.67	140.92	?	250	750	1000	475	.	6.2	1425	Grassland / shortgrass	Zoysia japonica	
552	Ghana	Nye, P.H., Greenland, D.J.	1960	6.15	-0.92	+	2201	261	2462	1169	.	.	1500	Forest / rainforest	Diospyros spp.	silty clay loam latosol
2445	New Zealand	O'Brien, B.J., et al.	1978	.	.	.	.	.	800	380	.	.	.		Lolium trifolium	Typic dystrochrept
477	USA	Odum, Jordan *	1970	18.00	-66.50	*	.	.	1230	584	.	.	.	Forest / lower montane rainforest		
183	USA	Old, S.M.	1969	40.00	-89.00	+	328	.	.	312	.	.	.	Grassland	Andropogon gerardi	
639	USSR	Omina *	1955	51.50	39.17	?	.	.	650	309	.	.	.	Forest	Quercus; Fraxinus; Corylus; Carex	Dark grey forest sandy loam
440	USA	Onuf, C.P., et al.	1978	34.10	-119.00	*	.	.	727	345	.	.	.	Wetland / salt-marsh	Mixed Succulents	
439	USA	Onuf, C.P., et al.	1978	34.10	-119.00	*	.	.	286	136	.	.	.	Wetland / salt-marsh	Salicornia virginica	
1006	UK	Ovington *	1959	52.58	0.75	?	1303	.	.	1238	.	.	.	Forest	Pinus sylvestris	
1007	UK	Ovington *	1959	52.58	0.75	?	1275	.	.	1211	.	.	.	Forest	Pinus sylvestris	
1008	UK	Ovington *	1959	52.58	0.75	?	2550	.	.	2423	?	.	.	Forest	Pinus sylvestris	
1009	UK	Ovington *	1959	52.42	0.75	?	1450	.	.	1378	.	.	.	Forest	Pinus sylvestris	
1097	UK	Ovington *	1959	54.00	-2.00	+	.	.	1420	675	.	.	.	Forest		
1050	UK	Ovington, J.D.	1956	51.25	0.67	?	884	.	.	840	.	.	.	Forest / plantation	Abies; Larix; Tsuga; Picea; Castanea; Notofagus; Pinus; Chamaecyaris; Thuja; Quercus	
1053	UK	Ovington, J.D.	1956	52.58	0.75	?	560	.	.	532	.	.	.	Forest / plantation	Alnus; Larix; Pseudotsuga; Pinus; Betula	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
1054	UK	Ovington, J.D.	1956	51.80	-2.50	?	681			647				Forest / plantation	<i>Pseudotsuga</i> ; <i>Larix</i> ; <i>Pinus</i> ; <i>Picea</i> ; <i>Castanea</i> ; <i>Quercus</i> ; <i>Fagus</i> ; <i>Abies</i>	
249	USA	Ovington, J.D., et al.	1963	46.00	-94.00	+	946	121	1067	507				Crops	<i>Zea mays</i>	
1096	UK	Ovington, Madgwick *	1969	54.00	-2.00	+			360	171				Forest / deciduous broad-leaved		
2353	India	Pandey, D.D., et al.	1980	25.30	83.17	?	1159	281	1440	684			902	Grassland	<i>Dichanthium annulatum</i>	
2354	India	Pandey, H.N., et al.	1980	25.27	83.52	?	1637			1555		26	1057		<i>Dichanthium</i>	
2355	India	Pandey, H.N., et al.	1980	25.27	83.52	?	2381			2262		26	1057		<i>Heteropogon</i> ; <i>Vetiveria</i> ; <i>Desmostachya</i>	
2356	India	Pandey, H.N., et al.	1980	25.27	83.52	?	1550			1473		26	1057	Forest	<i>Shorea buchanania</i> ; <i>Terminalia</i>	
2373	Hungary	Papp, L.B.	1979	47.90	20.47	?	1013	65	1078	512		9.9	557	Forest	<i>Quercus petraea</i> ; <i>Q. cervis</i>	Brown earth
15	USA	Parker, G.R., et al.	1975	46.50	-86.00	*	576			547					<i>Alnus rugosa</i>	Very fine sand loam
14	USA	Parker, G.R., et al.	1975	46.50	-86.00	*	641			609					<i>Alnus rugosa</i> ; <i>Fraxinus nigra</i> ; <i>Cornus stolonifera</i>	Poorly drained silty clay loam
653	USSR	Parshevnikov, A.I.	1957	59.28	40.22	?			540	257				Forest	<i>Picea excelsa</i>	Peaty humus gley
645	USSR	Parshevnikov, A.L.	1962	26.33	31.00	*			670	318				Forest / coniferous and mixed		Medium podsolized loam
2480	USA	Pastor, J., et al.	1981	45.83	-89.67	?	1030	120	1150	546			800	Forest	<i>Populus</i> ; <i>Acer</i> ; <i>Betula</i> ; <i>Quercus</i>	Typic fragiorthod orthic humo ferric pod.
458	Trinidad	Paterson, D.D.	1938	10.50	-61.25	*			4360	2071				Pasture	<i>Panicum barbinode</i>	
457	Trinidad	Paterson, D.D.	1938	10.50	-61.25	*			4170	1981				Pasture	<i>Pennisetum purpureum</i>	
456	Trinidad	Paterson, D.D.	1938	10.50	-61.25	*			3620	1720				Pasture	<i>Tripsacum laxum</i>	
34	USA	Patten, D.T.	1975	33.83	-112.00	*			98	47				Desert		
1046	Sweden	Pearsall, W.H., et al.	1957	68.50	19.05	?			240	114				Tundra		
415	USA	Pearson, L.C.	1965	43.82	-111.78	+	2024		4050	1924	?				<i>Fraxinus americana</i>	Azonal sand; loam soil
417	USA	Pearson, L.C.	1965	44.17	-110.83	?	1848		4160	1976	?				<i>Pinus contorta</i>	
414	USA	Pearson, L.C.	1965	44.50	-111.00	+	2222		4990	2370	?				<i>Pinus</i> ; <i>Abies</i>	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
427	USA	Pearson, L.C.	1965	44.50	-111.00	+	4144		9320	4427	?				Pinus; Abies	
416	USA	Pearson, L.C.	1965	44.50	-111.20	+	2024		4550	2161	?				Pinus; Populus	
413	USA	Pearson, L.C.	1965	43.00	-111.67	?	3780		8520	4047	?				Populus; Lupinus	
418	USA	Pearson, L.C.	1965	43.50	-112.00	*	1707		3410	1620					Typha latifolia	
424	USA	Pearson, L.C.	1965	43.82	-111.78	?	858	516	1374	653	I			Crops	Raphanus sativus	Azonal sandy loam soil
425	USA	Pearson, L.C.	1965	43.82	-111.78	?	669	1065	1734	824	I			Crops	Solanum tuberosum	Azonal sandy loam soil
423	USA	Pearson, L.C.	1965	43.82	-111.78	?	815	416	1231	585				Crops	Triticum aestivum	Sandy azonal soil
404	USA	Pearson, L.C.	1965	43.75	-112.00	+	55		123	58				Desert	Chrysothamnus; Tetradyimia; Oryzopsis	Sierozem soil
405	USA	Pearson, L.C.	1965	43.75	-112.00	+	78		176	84				Desert	Juniperus; Artemesia; Stipa	Azonal; very shallow soil
420	USA	Pearson, L.C.	1965	44.00	-112.00	+	173		390	185				Desert	Prunus; Purshia; Stipa	sand dunes
421	USA	Pearson, L.C.	1965	43.82	-111.78	+	123	42	165	78			270	Desert / shrub steppe (grazed)	Artemesia; Stipa; Poa	Azonal shallow soil over lava
422	USA	Pearson, L.C.	1965	43.82	-111.78	+	98	164	262	124			270	Desert / shrub steppe (protected)	Stipa; Poa; Artemesia	Azonal shallow soil over lava
426	USA	Pearson, L.C.	1965	43.50	-112.00	*	205		409	194				Pasture	Verbascum thapsus; Hordeum jubatum; Poa pratensis	
2418	Philippines	Penafiel, S.R.	1979				157			149	?		3171		Themeda; Andropogon;	Loamy
171	USA	Peterson, Davis *	1975	38.00	-122.00	+			2240	1064				Crops	Oryza sativa	
2	Canada	Pollard, D.F.W.	1971	46.00	-77.43	+	960			912		4.2	788		Populus tremuloides	
3	Canada	Pollard, D.F.W.	1971	46.00	-77.43	+	950			903		4.2	788		Populus tremuloides Populus grandidentata	Sand over deep compacted silt
1	Canada	Pollard, D.F.W.	1971	46.00	-77.43	+	284			270		4.2	788		Quercus; Betula; Populus tremuloides; P.grandidentata	
862	USSR	Polozova, T.G., et al.	1970	75.00	90.00	+	40			38				Tundra		
2398	Romania	Popescu-Zeletin, I.	1981	45.38	23.25	+	925			879		5.7	895	Forest	Fagus sylvatica; Abies; Pulmonaria;	Brown forest soil
269	USA	Prine, G.M., et al.	1956						2530	1202	F			Pasture	Cynodon dactylon	



Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
1110	Austria	Puempel, B.	1977	47.17	12.50	?	20			19						
1112	Austria	Puempel, B.	1977	47.17	12.50	?	374			355						
646	USSR	P'yavchenko A. B *	1969	59.17	40.00	*			590	280				Forest	Picea; Sphagnum	Soil of lowland peat bog type
796	USSR	P'yavchenko, N.I.	1960	60.00	40.22	?			310	147				Forest / coniferous and mixed	Pinus sp; Sphagnum sp	Upland peat bog
184	USA	Quinnald, C.L., et al.	1958	47.50	-102.00	*	215			204					Agropyron smithii	
550	Nigeria	Rains, A.B.	1963	9.00	9.00	+	340			323			1118			
116	USA	Ralston, C.W.	1973	36.00	-78.00	+	1190	190	1380	656		13.6	1150	Plantation	Pinus taeda	
837	India	Rao, A.	1970	25.30	83.17	?			2313	1099					Dichanthium sp.	
828	India	Rao, A.	1970	25.33	83.00	*			2852	1355				Grassland	Dichanthium; Desmodium	
2144	France	Rapp, M.	1971	48.56	1.61	+	650			618		14.4	770			Red mediterranean paleosol
2145	France	Rapp, M.	1971	48.54	1.64	+	140			133		14.4	770			Brown calcareous soil
2385	France	Rapp, M., et al.	1981				340			323						
2384	France	Rapp, M., et al.	1981				370			352					Pinus; Pistacia; Dorycnium; Bromus;	
258	Canada	Reader, Stewart *	1971	49.88	-95.90	?	372	1461	1942	922				Wetland / bog		
78	Canada	Reader, Stewart *	1972	49.88	-95.90	?			1631	775				Wetland / peatland	Div.	
76	Canada	Reader, Stewart *	1972	49.88	-95.90	?			993	472				Wetland / peatland	Ledum; Chamaedaphne; Kalmia; Vaccinium; Picea; Sphagnum	
77	Canada	Reader, Stewart *	1972	49.88	-95.90	?			710	337				Wetland / peatland	Pleurozium schreberi; Ledum groenlandicum; Picea mariana	
186	USA	Redmann, R.E.	1968	47.50	-102.00	*	77			73				Grassland	Bouteloua	
185	USA	Redmann, R.E.	1968	47.50	-102.00	*	200			190				Grassland	Sporobolus	
2307	USA	Reichle, D.E.	1981	35.92	-84.28	+			1381	656		13.3	1265	Forest	Liriodendron tulipifera; Quercus	Alluvial emory silt loam
2312	USA	Reimold, R.J., et al.	1975	31.42	-81.25	*	1846			1754				Wetland	Spartina; Juncus	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
118	USA	Reiners, W.A.	1972	45.00	-93.00	+	707	.	.	672	.	.	.	.	Acer; Alnus; Betula; Ulmus; Carpinus; Fraxinus; Prunus; Quercus; Thuja	Nutrient-rich neutral to near neutral peat
119	USA	Reiners, W.A.	1972	45.33	-93.00	*	891	.	.	846	.	.	.	.	Quercus; Populus; Prunus; Fraxinus; Betula; Alnus	Well drained sandy soil mor and mull
117	USA	Reiners, W.A.	1972	45.33	-93.00	*	1032	.	.	980	.	.	.	.	Thuja Occidentalis; Acer; Alnus; Ulmus; Larix; Fraxinus	High peat deposits
362	USA	Reitz, L.P.	1967	46.67	-117.17	?	.	.	2980	1416	.	.	.	Crops	Triticum vulgare	
1056	USSR	Remezov, N.P.	1964	51.67	39.17	?	524	214	738	351	.	.	.	Forest steppe		
1057	USSR	Remezov, N.P.	1964	51.67	39.17	?	722	175	879	418	.	.	.	Forest steppe zone		
776	USSR	Remezov, N.P., et al.	1963	54.80	43.33	?	.	.	610	290	.	.	.	Forest	Pinus sp.; Vaccinium vitis-Idaea	
636	USSR	Remezov, N.P., et al.	1963	56.33	31.00	*	.	.	890	423	.	.	.	Forest / coniferous and mixed		Light loam podsol
638	USSR	Remezov, N.P., et al.	1963	56.33	31.00	*	.	.	740	352	.	.	.	Forest / coniferous and mixed		Peaty podsol
637	USSR	Remezov, N.P., et al.	1963	56.33	31.00	*	.	.	1070	508	.	.	.	Forest / coniferous and mixed	Picea sp.; Betula sp.	Peaty podsol
640	USSR	Remezov, N.P., et al.	1963	51.50	39.17	?	.	.	1740	827	.	.	.	Forest / deciduous broad-leaved	Populus; Quercus; Carex; Aegopodium	Grey forest sand soil
255	USA	Richardson, C.J., et al.	1976	44.33	-84.83	?	341	.	.	324	.	.	.	.	Betula pumila; Chamaedaphne calyculata	
536	South Africa	Robinson	1970	-25.75	28.17	?	110	.	.	105	.	.	607	.		
216	USA	Rochow, J.J.	1974	38.80	-92.20	+	600	200	800	380	.	12.8	940	Forest	Quercus; Hickory	
1884	USSR	Rodin, Bazilevich *	1969	.	.	.	.	.	531	252	.	.	.	Forest / tundra	Picea	
841	USSR	Rodin, L.E. *	1979	46.08	59.00	*	.	.	535	254	.	.	120	Desert	Ammodendron argenteum; Artemesia terraealsa; Annabasis saka	
842	USSR	Rodin, L.E. *	1979	40.75	63.75	?	.	.	125	59	.	15.2	95	Desert	Artemesia turanica; A. diffusa; Nanophyton erinaceum	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
843	USSR	Rodin, L.E. *	1979	44.33	76.00	*	.	.	1682	799	.	9	217	Desert	<i>Ephedra lomatolepis</i> ; <i>Eurotia ceratoides</i> ; <i>Artemisia albae</i> ; <i>Agropyron fragile</i>	
844	USSR	Rodin, L.E. *	1979	38.67	68.18	?	.	.	747	355	.	16	114	Desert	<i>Haloxylon ammodendron</i>	
840	USSR	Rodin, L.E. *	1979	38.67	58.27	?	.	.	360	171	.	15.6	148	Desert	<i>Haloxylon persicum</i> ; <i>Calhigonum rubens</i> ; <i>Salsola arbuscula</i> ; <i>S. gemmascens</i>	
1866	USSR	Rodin, L.E., Bazilevich, N.I.	1956	43.00	60.00	+	88	431	.	247	.	.	.		<i>Anabasis salsa</i>	Primitive; taky; solonetzic
785	India	Rodin, L.E., Bazilevich, N.I.	1968	24.18	73.67	?	440	290	730	347	.	.	.	Savanna / dry		Red brown tropical soil
545	Algeria	Rodin, L.E., et al.	1972	33.00	3.00	+	115	62	177	84	.	.	.	Desert / semi-desert	<i>Artemisia herba-alba</i>	
634	Syria	Rodin, L.E., et al.	1972	36.00	38.00	+	.	.	238	113	.	18	155	Desert	<i>Poa sinaica</i> ; <i>Salsola rigida</i> ; <i>Phyretum</i>	Gray soils on alluvium of limestone
702	Syria	Rodin, L.E., et al.	1972	35.00	38.00	+	130	108	238	113	.	.	.	Grassland / steppe	<i>Poa sinaica</i> ; <i>Artemisia</i>	
738	USSR	Rodin, L.E., et al.	1972	37.00	54.00	+	.	.	70	33	.	.	.		<i>Halocnemum strobilaceum</i> ; <i>Kalidium caspicum</i>	Sulphate-chloride solonchaks
1090	Sweden	Rosswall *	1975	68.37	19.05	?	132	24	156	74	.	.	.	Tundra		
722	Afghanistan	Rousyaeva, G.G.	1972	35.50	71.67	?	40	.	.	38	.	8.7	235		<i>Artemisia vachanica</i> ; <i>Carex pachystylis</i> ; <i>Poa bulbosa</i> ; <i>Polygenum paronychioid</i>	
1852	Burma	Rozanov, B.G., Rozanova, I.M.	1964	.	.	.	800	.	.	760	.	.	.		<i>Dendrocalamus strictus</i>	Tropical cinnamon-brown
643	Burma	Rozanov, B.G., Rozanova, I.M.	1964	19.00	96.00	+	1070	.	.	1017	.	.	.			Trop. Cinnamon-brown
642	Burma	Rozanov, B.G., Rozanova, I.M.	1964	20.00	96.00	+	1610	.	.	1530	.	.	.		<i>Dendrocalamus</i> ; <i>Oxythenanthera</i>	Krasnozern
641	Burma	Rozanov, B.G., Rozanova, I.M.	1964	22.00	96.00	+	1950	.	.	1853	.	.	.		<i>Oxytenanthera</i>	Zheltozem
2337	USSR	Rudneva et al.	1981	64.67	47.50	+	537	60	597	284	.	-1.2	499	Forest / boreal	<i>Picea abies</i> ; <i>Juniperus</i> ;	Gley podsol loamy
1084	Germany	Runge, M.	1973	51.78	9.67	?	1243	250	1493	709	.	6.5	1100	Forest	<i>Fagus sylvatica</i> ; <i>Luzula</i>	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
2217	India	Sahai, R., Asthana, M., et al.	1975	26.75	83.33	?	117	256	1430	679						
2216	India	Sahai, R., Asthana, M., et al.	1975	26.75	83.33	?	777	318	1095	520				Grassland		
2494	Canada	Sakai, A., et al.	1979	68.30	-133.48	?	216			205		-9.7	260		<i>Betula papyrifera</i>	
2407	UK	Satchell, J.E.	1981	54.21	-2.89	+	992	269	1261	599		7.8	1115	Forest / temperate deciduous	<i>Quercus petraea</i> ; <i>Betula</i> ; <i>Fraxinus</i> ;	Glacial drift and brown earth
2269	Japan	Satoo, T.	1968	35.15	140.15	?	1585			1506					<i>Cinnamomum</i>	
825	Japan	Satoo, T.	1969	37.00	139.00	+	770	540	1310	622				Forest	<i>Pinus densiflora</i>	
855	Japan	Satoo, T.	1970	39.75	141.00	*			1846	877		10.2	1806		<i>Larix leptolepis</i>	
848	Japan	Satoo, T.	1971	43.22	142.43	+	1213			1152		6.7	1200		<i>Picea abies</i>	
2319	Japan	Satoo, T.	1971	35.93	138.85	+	1423			1352		8.2	1900		<i>Picea abies</i>	
2340	Japan	Satoo, T.	1981	39.03	141.35	+	1638			1556		11.3	1467	Forest	<i>Pinus densifolia</i> ; <i>Quercus</i> ; <i>Carex</i> ;	Brown forest soil
2339	Japan	Satoo, T.	1981	39.75	141.00	+	1449	264	1713	814		10.2	1806	Plantation	<i>Larix leptolepis</i> ; <i>Morus</i> ; <i>Prunus</i> ;	Black volcanic ash
804	Japan	Satoo, T. *	1967	37.00	141.00	+	1447	131	1580	751				Forest / natural woodland	<i>Pinus densiflora</i>	
853	Japan	Satoo, T. *	1974	43.22	142.38	?	1450			1378		7.9	1188		<i>Abies sachalinensis</i>	Brown forest soil
856	Japan	Satoo, T. *	1974	43.22	142.43	+	625			594			1200		<i>Betula maximowicziana</i>	Moist brown forest
854	Japan	Satoo, T. *	1974	42.55	142.38	?	1510			1435					<i>Larix leptolepis</i>	
849	Japan	Satoo, T., et al.	1974	35.00	139.00	+	1720			1634					<i>Metasequoia glyptostroboides</i>	
850	Japan	Satoo, T., et al.	1974	37.53	136.90	?	1129			1073		12.7	2278		<i>Thujaopsis dolobrata</i>	
851	Japan	Satoo, T., et al.	1974	37.53	136.90	?	1918			1822					<i>Thujaopsis dolobrata</i>	
2520	USA	Schlesinger, W.H.	1978	30.83	-82.33	*	106			101	?			Wetland / swamp	<i>Itea</i> ; <i>Lyonia</i> ; <i>Clethra</i> ;	
2302	USA	Schlesinger, W.H.	1978	30.70	-82.33	*	692			657				Wetland / swamp	<i>Taxodium distichum</i>	
2304	USA	Schlesinger, W.H., et al.	1980	34.50	-119.50	*	850			808				Mediterranean / scrub	<i>Ceanothus megacarpus</i>	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
1111	Austria	Schmidt, L.	1977	47.22	11.33	?	338			321					Vaccinium; Loiseleuria; Empetrum	
942	New Zealand	Sears, P.D.	1948	-40.35	175.62	?	1900			1805						
703	USSR	Shamsiev, A.	1972	37.45	70.37	?	4	51	55	26				Desert / arid steppe	Aristida plumosa	
704	USSR	Shamsiev, A.	1972	37.45	70.37	?	54	204	158	75				Desert / arid steppe	Haloxylon persicum	
694	USSR	Shamsiev, A.	1972	37.45	70.37	?	28	25	54	26				Desert / arid steppe	Zygophyllum gontscharovii	
705	USSR	Shamsiev, A.	1972	37.45	70.37	?	85	465	550	261				Savanna / shortgrass semi-savanna		
2210	India	Shankar, V., et al.	1978	25.70	78.35	+	796	984	1780	846				Grassland	Chrysopogon fucvas	
2211	India	Shankar, V., et al.	1979	25.70	78.35	+	508	449	957	455				Grassland	Icklema laxum	
838	India	Sharma In Misra, Pandey *	1972	25.20	83.17	?			292	139				Forest	Shorea sp.	
938	Australia	Shaw, N.H., et al.	1965	-27.50	153.00	*			3190	1515				Pasture	Paspalum plicatulum	
818	Japan	Shidei, T.	1971	43.00	143.00	+			2380	1131				Forest	Abies sachalinensis	
816	Japan	Shidei, T.	1971	43.00	143.00	+			1350	641				Forest	Abies sp; Picea sp	
820	Japan	Shidei, T.	1971	37.00	139.00	+			1680	798				Forest	Abies veitchii	
822	Japan	Shidei, T.	1971	37.00	138.00	+			2100	998				Forest	Abies veitchii	
817	Japan	Shidei, T.	1971	43.00	143.00	+			1930	917				Forest	Larix leptolepsis	
819	Japan	Shidei, T.	1971	40.00	141.00	+			1460	694				Forest	Larix leptolepsis	
821	Japan	Shidei, T.	1971	37.00	138.00	+			1330	632				Forest	Larix leptolepsis	
815	Japan	Shidei, T.	1971	43.00	143.00	+			1010	480				Forest	Larix sp	
2341	Japan	Shidei, T.	1981	35.33	135.75	+	1010	150	1260	599		11.3	2788	Forest	Fagus crenata; Carpinus; Quercus;	Brown forest soil
369	USA	Sims, P.L., et al.	1971	45.53	-102.00	*	203	399	602	286		7.2	330	Grassland		

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
2074	USA	Sims, P.L., et al.	1978	46.40	-119.55	+	98			93				Grassland / bunchgrass	<i>Agropyron spicatum</i>	Silty loam mollisol
2070	USA	Sims, P.L., et al.	1978	32.60	-106.85	+	148	147	295	140				Grassland / desert	<i>Bouteloua eriopoda</i>	Loamy sand aridisol
2066	USA	Sims, P.L., et al.	1978	46.90	-102.82	+	351	932	1283	609				Grassland / mixed grass prairie	<i>Agropyron smithii</i>	Silty clay loam mollisol
2071	USA	Sims, P.L., et al.	1978	43.95	-101.87	+	249	547	795	378				Grassland / mixed grass prairie	<i>Agropyron smithii</i>	Silty clay loam mollisol
2069	USA	Sims, P.L., et al.	1978	38.87	-99.38	+	363	1062	1425	677				Grassland / mixed grass prairie	<i>Andropogon scoparius</i>	Loamy mollisol
2068	USA	Sims, P.L., et al.	1978	47.32	-114.27	+	272			258				Grassland / montane	<i>Festuca scabrella</i>	Cobbly silt loam mollisol
2073	USA	Sims, P.L., et al.	1978	45.78	-110.78	+	249	471	720	342				Grassland / montane	<i>Festuca idahoensis</i>	Silty loam mollisol
2072	USA	Sims, P.L., et al.	1978	35.30	-101.53	+	257	633	890	423				Grassland / shortgrass prairie	<i>Bouteloua gracilis</i>	Silty clay loam mollisol
2075	USA	Sims, P.L., et al.	1978	40.82	-104.77	+	172	568	740	352				Grassland / shortgrass prairie	<i>Bouteloua gracilis</i>	Sandy loam mollisol
2067	USA	Sims, P.L., et al.	1978	36.95	-96.55	+	346	542	887	421				Grassland / tallgrass prairie	<i>Andropogon scoparius</i>	Silty clay mollisol
839	India	Singh, J.S.	1967	25.30	83.17	?			744	353				Grassland		
745	India	Singh, J.S.	1967	25.30	83.17	?			764	363				Grassland / dry		
659	India	Singh, J.S.	1970	25.30	83.17	?			1838	873					<i>Dichanthium annulatum</i>	
709	India	Singh, J.S., et al.	1969	25.30	83.17	?	740			703			1100			
2213	India	Singh, J.S., et al.	1974	29.97	76.85	+	2407	1131	3538	1681		22	800	Grassland	<i>Dichanthium annulatum</i> ; <i>Panicum miliare</i> ; <i>Alhagi camelorum</i>	loamy calcareous; pH 8.5
2349	India	Singh, R., et al.	1980	28.38	75.00	*	170	53	223	106				Grassland	<i>Prosopis</i> ; <i>Zizyphus</i>	
217	USA	Smalley, A.E.	1958	31.50	-81.50	*			973	462				Wetland / salt-marsh	Angiosperm	
778	USSR	Smirnova, K.M., Gorodentseva, G.A.	1958	56.00	38.00	+			1110	527				Forest / deciduous broad-leaved		
2431	USA	Smith, L.L.	1979	19.00	-155.00	+	2628			2497		24	1050	Wetland	<i>Scirpus</i> ; <i>Brachiaria</i>	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
792	USSR	Sochava, V., et al.	1962	52.05	113.50	?	213	.	.	202	.	.	.			
199	USA	Sollins, P., et al.	1973	36.00	-85.00	+	900	300	1200	570	.	.	.	Forest		
2539	Australia	Specht, R.L.	1966	.	.	.	35	.	.	33	.	.	.		Eucalyptus; Melaleuca; Baeckea;	
2295	Australia	Specht, R.L.	1969	-36.03	140.50	?	88	.	.	84	.	.	450		Banksia; Xanthorrhoea	page 296
2294	Australia	Specht, R.L.	1969	-36.33	140.50	?	88	.	.	84	.	.	450		Eucalyptus; Melaleuca	page 296
2292	France	Specht, R.L.	1969	43.62	3.88	?	410	.	.	390	.	.	750		Quercus coccifera	page 294
2293	USA	Specht, R.L.	1969	34.17	-117.75	?	100	.	.	95	.	.	800	Mediterranean / scrub	Adenostoma; Ceanothus	page 294
2432	Australia	Specht, R.L.	1981	.	.	.	180	.	.	171	.	.	.		Eucalyptus incrassata; Melaleuca uncinata	
1034	Germany	Speidel, Weiss *	1972	51.75	9.58	?	316	487	603	286	.	.	.	Wetland / meadow	Festuca rubra	Variegated brown earth; pH 4.5
1035	Germany	Speidel, Weiss *	1972	51.75	9.58	?	808	609	1417	673	.	.	.	Wetland / montane meadow	Festuca rubra	Variegated brown earth; pH 4.5
172	USA	Stanford *	1975	37.00	-120.00	+	.	.	2970	1411	.	.	.		Medicago sp.	
799	Israel	Stanhill, G.	1962	31.00	34.50	*	1860	.	.	1767	.	.	.		Medicago sp.	
696	USSR	Stanyukovich, K.V., et al.	1972	37.45	70.37	?	811	629	1440	684	.	.	.	Desert / montane shrub meadow	Crataegus	
698	USSR	Stanyukovich, K.V., et al.	1972	38.55	68.58	?	1585	315	1900	903	.	.	.	Desert / steppe	Agropyron	
695	USSR	Stanyukovich, K.V., et al.	1972	37.45	70.37	?	30	21	51	24	.	.	.	Desert / steppe	Artemisia porrecta	
407	Canada	Svoboda *	1972	75.67	-84.67	?	15	.	.	20	.	.	.	Desert / semi-polar-desert		
24	Canada	Svoboda *	1973	75.55	-84.67	?	.	.	.	61	.	.	.	Tundra		
810	Japan	Tadaki, Y.	1965	33.00	130.00	+	.	.	1670	793	.	.	.		Cryptomeria japonica	
811	Japan	Tadaki, Y.	1965	31.50	131.00	*	.	.	1510	717	.	.	.		Cryptomeria japonica	
808	Japan	Tadaki, Y.	1968	31.50	131.00	*	.	.	2270	1078	.	.	.	Forest	Castanopsis cuspidata	
809	Japan	Tadaki, Y., et al.	1967	34.00	131.00	+	.	.	1880	893	.	.	.		Cryptomeria japonica	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks	
813	Japan	Tadaki, Y., et al.	1969	36.00	138.00	+	.	.	1390	660	.	.	.	.	<i>Fagus crenata</i>		
807	Japan	Tadaki, Y., et al.	1970	36.00	138.00	+	.	.	1266	601	.	.	.	Forest / subalpine forest	<i>Abies</i>		
635	Israel	Tadmor, N.H., et al.	1972	31.37	34.58	?	340	.	.	323	.	.	250	.	<i>Brachypodium</i> ; <i>Hordeum</i> ; <i>Elymus</i> ; <i>Phalaris</i> ; <i>Stipa</i> ; <i>Trigonella</i> ; <i>Arthemis</i> ; <i>Erucaria</i>	Deep sandy loam soil	
1282	Jamaica	Tanner, E.V.J.	1980	18.00	-77.00	+	760	.	.	722	.	15.4	2230	.	.	.	
1283	Jamaica	Tanner, E.V.J.	1980	18.00	-77.00	+	680	.	.	646	.	15.4	2230	.	.	.	
1284	Jamaica	Tanner, E.V.J.	1980	18.00	-77.00	+	650	.	.	618	.	15.4	2230	.	.	.	
1285	Jamaica	Tanner, E.V.J.	1980	18.00	-77.00	+	690	.	.	656	.	15.4	2230	.	.	.	
1286	Jamaica	Tanner, E.V.J.	1980	18.00	-77.00	+	990	.	.	941	.	15.4	2230	.	.	.	
2168	USSR	Tesarova, M.	1976	.	.	.	850	.	.	808	.	.	.	Grassland / meadow	<i>Alopecurus pratensis</i>		
2167	USSR	Tesarova, M.	1976	.	.	.	750	.	.	713	.	.	.	Grassland / meadow	<i>Festuca sulcata</i>		
2169	USSR	Tesarova, M.	1976	.	.	.	1462	.	.	1389	.	.	.	Grassland / meadow	<i>Glyceria maxima</i>		
2401	Denmark	Thamdrup, H.M.	1981	56.30	10.48	+	1499	375	1874	890	.	7.1	660	Forest / temperate deciduous	<i>Fagus sylvatica</i> ; <i>Anemone</i> ; <i>Carex</i> ;	Grey-brown podsolic mollic hapludalf	
254	USA	Tieszen, L.L.	1972	71.33	-156.65	*	101	.	.	96	.	.	.	Tundra	<i>Carex aquatilis</i> ; <i>Dupontia fischeri</i> ; <i>Eriophorum angustifolium</i> ; <i>Poa arctica</i> ; <i>Calamagrostis holmii</i> ; <i>Eriophorum scheuchzeri</i> ; other species		
384	USA	Tieszen, L.L.	1972	71.30	-156.67	*	102	.	.	97	.	.	.	Tundra	<i>Dupontia fischeri</i> ; <i>Carex aquatilis</i> ; <i>Eriophorum angustifolium</i>		
800	Japan	Togari, Y., et al.	1970	39.70	141.15	?	890	.	.	846	.	.	.	Crops	<i>Glycine max</i>		
801	Japan	Togari, Y., et al.	1970	33.00	131.00	+	630	.	.	599	.	.	.	Crops	<i>Glycine max</i>		
746	India	Tripathi, J.S.	1970	.	.	.	.	.	520	247	.	.	.	Grassland / mixed			



Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
2347	India	Trivedi, B.K., Mishra, G.P.	1979	25.17	79.25	?	824	773	1597	759		25	876	Grassland	Sehima; Dichanthium	
2350	India	Trivedi, B.K., Mishra, G.P.	1979	25.45	70.58	?	1223	1166	2389	1135		25	876	Grassland	Sehima; Dichanthium	
38	USA	Turner, F.B., et al.	1974	36.67	-116.00	*	57			54				Desert		
37	USA	Turner, F.B., et al.	1974	36.67	-116.00	*			67	32			213	Desert		
2387	Sweden	Tyler, G., et al.	1973				307			292					Calluna vulgaris	
445	USA	Valk, Davis *	1978	42.00	-93.00	+		560	1575	748						
2538	USA	Van Cleve, K.	1981	64.00	-148.00	+	159	80	239	114				Forest / boreal evergreen	Picea mariana; Ledum;	Pergelic cryaquept
2537	USA	Van Cleve, K.	1981	64.00	-148.00	+	81	45	126	60		-3.4	277	Forest / boreal evergreen	Picea; Ledum;	Pergelic cryaquept
2476	USA	Van Cleve, K., et al.	1981	64.75	-148.25	+	724			688		-0.4	267	Forest / boreal evergreen	Picea mariana	Pergelic cryaquept
2477	USA	Van Cleve, K., et al.	1981	64.75	-148.25	+	132			125		-3.4	267	Forest / boreal evergreen	Picea mariana	Alfic cryoquept
2408	Netherlands	Van Der Drift, J.	1981	51.92	6.70	+	1120			1064		8.6	780	Forest / temperate	Quercus petraea; Fagus; Sorbus	Mor layer on humus infiltrated sands
533	Rwanda	Verschuren	1970	-2.00	29.00	+	1750			1663			860			
537	Rwanda	Verschuren	1970	-2.00	29.00	+	630			599			860			
535	Tanzania	Verschuren	1970	-3.00	35.00	+	520			494			700			
460	USA	Vicente-Chandler, J., et al.	1959	18.00	-67.00	+			4880	2318				Pasture	Panicum maximum	
461	USA	Vicente-Chandler, J., et al.	1959	18.00	-67.00	+			4060	1929				Pasture	Panicum purpurascens	
173	USA	Vicente-Chandler, J., et al.	1959	18.00	-66.50	*			8590	4080				Pasture	Pennisetum purpureum	
459	USA	Vicente-Chandler, J., et al.	1959	18.00	-67.00	+			8470	4023				Pasture	Pennisetum purpureum	
462	USA	Vicente-Chandler, J., et al.	1964	18.00	-67.00	+			3340	1587				Pasture	Digitaria decumbens	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
1060	Czechoslovakia	Vyskot, M.	1976	48.80	16.77	?	1788	.	.	1699	.	9	524		Quercus; Fraxinus; Tilia; Ulmus	
218	USA	Waits *	1976	35.00	-76.00	+	.	.	1189	565	.	.	.	Wetland / salt-marsh	Angiosperm	
1025	Sweden	Wallentinus, H.G.	1973	59.20	17.50	+	430	.	.	409	.	5.9	557	Grassland / seashore meadow	Juncus gerardii	Heavy clay
158	Canada	Warren, et al.	1957	75.00	-95.00	+	.	.	3	1	.	.	.	Tundra / arctic tundra	Salix arctica	
463	El Salvador	Watkins, J.M., Lewy Van Severen, M.	1951	13.83	-89.00	*	3150	.	.	2993	.	.	.	Pasture	Hypanthia rufa	
464	El Salvador	Watkins, J.M., Lewy Van Severen, M.	1951	13.83	-89.00	*	2990	.	.	2841	.	.	.	Pasture	Panicum maximum	
472	El Salvador	Watkins, J.M., Lewy Van Severen, M.	1951	13.83	-89.00	*	8530	.	.	8104	.	.	.	Pasture	Pennisetum purpureum	
366	USA	Weber, C.R., et al.	1966	42.00	-93.58	+	.	.	1040	494	.	.	.	Crops	Glycine max	
256	Canada	Wein, R.W., et al.	1974	64.75	-138.35	?	169	.	.	161	.	.	.			
257	USA	Wein, R.W., et al.	1974	65.43	-145.50	?	110	.	.	105	.	.	.	Tundra		
410	USA	Wein, R.W., et al.	1974	65.19	-149.70	+	84	.	.	80	.	.	.	Tundra	Eriophorum; Ledum; Vaccinium; Carex; Empetrum; Betula nana; Rubus; Andromeda	
411	USA	Wein, R.W., et al.	1974	65.43	-145.50	?	72	.	.	68	.	.	.	Tundra	Eriophorum; Ledum; Vaccinium; Carex; Empetrum; Betula nana; Rubus; Andromeda	
412	USA	Wein, R.W., et al.	1974	69.37	-151.92	?	57	.	.	54	.	.	.	Tundra	Eriophorum; Ledum; Vaccinium; Carex; Empetrum; Betula nana; Rubus; Andromeda	
114	USA	Wells et al. *	1975	35.92	-79.00	+	970	190	1160	551	.	15.6	1150	Plantation	Pinus taeda	
534	Zimbabwe	West	1970	-20.50	28.50	*	145	.	.	138	?	.	650			
252	USA	Westman, Whittaker *	1975	39.33	-123.83	?	307	96	402	191	.	.	.	Forest		

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
197	USA	White et al. *	1978	31.00	-92.50	*	.	.	1649	783	.	.	.	Wetland / salt marsh	<i>Distichlis spicata</i> ; <i>Spartina patens</i> ; <i>S. alterniflora</i> ; <i>Juncus roemerianus</i>	
193	USA	Whittaker et al. *	1974	44.00	-71.50	+	986	52	1038	493	.	.	1250	Forest	<i>Acer</i> ; <i>Betula</i> ; <i>Fagus</i>	Podsolc Harplothod
2078	USA	Whittaker, R.H.	1966	35.70	-83.45	?	983	.	.	934	.	.	.			
2081	USA	Whittaker, R.H.	1966	35.75	-83.37	?	498	.	.	473	.	.	.		<i>Pinus</i>	
2082	USA	Whittaker, R.H.	1966	35.75	-83.50	?	539	.	.	512	.	.	.		<i>Quercus</i>	
2099	USA	Whittaker, R.H.	1966	35.70	-83.45	?	566	.	.	538	.	.	.	Forest	<i>Abies</i>	
2100	USA	Whittaker, R.H.	1966	35.70	-83.45	?	653	.	.	620	.	.	.	Forest	<i>Abies</i>	
2085	USA	Whittaker, R.H.	1966	35.70	-83.45	?	812	.	.	771	.	.	.	Forest	<i>Abies</i> ; <i>Rhododendron</i>	
2086	USA	Whittaker, R.H.	1966	.	.	.	1221	.	.	1160	.	.	.	Forest	<i>Acer</i>	
2091	USA	Whittaker, R.H.	1966	35.75	-83.37	?	1097	.	.	1042	.	.	.	Forest	<i>Aesculus</i> ; <i>Tilia</i>	
2094	USA	Whittaker, R.H.	1966	35.67	-83.42	?	906	.	.	861	.	.	.	Forest	<i>Fagus</i>	
2093	USA	Whittaker, R.H.	1966	35.67	-83.42	?	668	.	.	635	.	.	.	Forest	<i>Fagus</i>	
2083	USA	Whittaker, R.H.	1966	35.83	-83.17	?	1333	.	.	1266	.	.	.	Forest	<i>Fagus</i> ; <i>Tsuga</i>	
2090	USA	Whittaker, R.H.	1966	35.75	-83.37	?	2408	.	.	2288	.	.	.	Forest	<i>Liriodendron</i>	
2097	USA	Whittaker, R.H.	1966	35.67	-83.50	?	1024	.	.	973	.	.	.	Forest	<i>Picea</i> ; <i>Abies</i>	
2098	USA	Whittaker, R.H.	1966	35.67	-83.50	?	1173	.	.	1114	.	.	.	Forest	<i>Picea</i> ; <i>Abies</i>	
2080	USA	Whittaker, R.H.	1966	35.80	-83.42	?	991	.	.	941	.	.	.	Forest	<i>Pinus</i>	
2079	USA	Whittaker, R.H.	1966	35.67	-83.85	?	875	.	.	831	.	.	.	Forest	<i>Pinus</i>	
2095	USA	Whittaker, R.H.	1966	35.67	-83.85	?	828	.	.	787	.	.	.	Forest	<i>Quercus</i>	
2096	USA	Whittaker, R.H.	1966	35.67	-83.85	?	568	.	.	540	.	.	.	Forest	<i>Quercus</i>	
2089	USA	Whittaker, R.H.	1966	35.75	-83.37	?	1465	.	.	1392	.	.	.	Forest	<i>Quercus</i> ; <i>Acer</i>	
2088	USA	Whittaker, R.H.	1966	36.00	-84.33	?	1203	.	.	1143	.	.	.	Forest	<i>Quercus</i> ; <i>Carya</i>	
2087	USA	Whittaker, R.H.	1966	35.75	-83.50	?	1911	.	.	1815	.	.	.	Forest	<i>Quercus</i> ; <i>Liriodendron</i>	
2092	USA	Whittaker, R.H.	1966	.	.	.	1183	.	.	1124	.	.	.	Forest	<i>Tsuga</i>	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
2084	USA	Whittaker, R.H.	1966	35.75	-83.37	?	1022	.	.	971	.	.	.	Forest	Tsuga; Rhododendron	
175	USA	Whittaker, Woodwell *	1969	40.50	-74.00	*	.	.	1350	641	.	.	.	Forest		
194	USA	Whittaker, Woodwell *	1969	35.83	-84.00	*	.	.	1378	655	.	.	.	Forest		
195	USA	Whittaker, Woodwell *	1969	35.83	-84.00	*	.	.	1248	593	.	.	.	Forest		
403	USA	Wiegert, R.G., et al.	1964	42.63	-83.83	•	313	144	457	217	.	.	.	Grassland	Aristida purpurascens; Poa compressa	Gray-brown podsolc sandy loam (upland)
403a	USA	Wiegert, R.G., et al.	1964	42.63	-83.83	•	1004	358	1362	647	.	.	.	Grassland	Poa pratensis; Asclepias syriaca; Setaria glauca; Rumex acetosella	Gray-brown podsolc sandy loam plus silt (swale)
68	USA	Wiegert, R.G., et al.	1975	33.20	-81.80	+	1007	.	.	957	.	.	.	Pasture	Lespedeza cuneata	Sandy loam
1026	Norway	Wielgolaski, F.E.	1972	60.33	7.50	?	289	245	534	254	.	.	.	Wetland / dry meadow		
1027	Norway	Wielgolaski, F.E.	1972	60.33	7.50	?	.	.	833	396	.	.	.	Wetland / wet meadow	Carex nigra	
1017	Norway	Wielgolaski, F.E.	1972	60.30	7.68	?	425	410	835	397	.	.	.	Wetland / wet meadow	Salix lapponum; Salix herbacea; Carex nigra;	
1020	Norway	Wielgolaski, F.E.	1978	60.33	7.68	?	.	.	350	166	.	2.5	900	Wetland / alpine tundra		Undergr. Granite; gneiss
213	USA	Wight, J., et al.	1972	47.72	-104.15	?	443	.	.	421	.	.	.	Pasture		
214	USA	Wight, J., et al.	1972	47.72	-104.15	?	134	.	.	127	.	.	.	Pasture		
960	New Zealand	Will, G.M.	1964	-37.63	177.00	*	1636	.	.	1554	.	.	.		Pinus radiata	
929	New Zealand	Will, G.M.	1964	-39.00	176.00	+	2000	350	2350	1116	.	.	.	Forest	Pinus radiata	
2237	New Zealand	Will, G.M.	1966	-38.40	176.60	+	3319	304	3623	1721	.	.	.		Pinus radiata	Pumice soils
219	USA	Williams, R.B., et al.	1969	35.00	-76.00	+	.	.	650	309	.	.	.	Wetland / salt-marsh	Angiosperm	
1022	UK	Williamson, P.	1976	51.00	-0.90	+	691	.	.	656	.	.	.	Grassland	Festuca rubra	Humic soil over chalk; pH 7.8-8.0
11	USA	Wise, E.S.	1970	37.50	-79.50	*	498	.	.	473	.	.	.	Wetland / salt-marsh	Spartina alterniflora	

Table A (continued)

NPP ID	Country	Author	Year	Latitude	Longitude	LL flag	ANPP max	BNPP max	TNPP max	NPP_C	NPP flag	Temp (°C)	Precip (mm)	Vegetation type	Species (mostly in order of importance)	Soil remarks
465	Cuba	Wollner, H., et al.	1968	23.00	-82.50	*	.	.	3940	1872	F	.	.	Pasture	<i>Digitaria decumbens</i>	
28	USA	Woodwell, Whittaker *	1967	40.83	-72.90	+	.	.	1260	599	.	9.8	1240	Forest	<i>Quercus alba</i> ; <i>Q. coccinea</i> ; <i>Pinus rigida</i>	Sandy podsollic
367	USA	Worker, G.F., et al.	1968	32.67	-115.67	?	.	.	4660	2214	.	.	.	Crops	<i>Sorghum bicolor</i> X <i>S. sudanensis</i>	
368	USA	Young, O.R., et al.	1963	20.83	-156.60	*	.	.	3070	1458	.	.	.	Crops	<i>Beta vulgaris</i>	
74	USA	Zavitkovski, J., et al.	1972	42.00	-125.00	+	.	.	2600	1235	.	.	.		<i>Alnus rubra</i>	
2473	USA	Zavitkovski, J., et al.	1981	46.33	-1.00	*	440	.	.	418	.	.	.		<i>Pinus banksiana</i>	
2474	USA	Zavitkovski, J., et al.	1981	45.33	-1.00	*	520	.	.	494	.	.	.		<i>Pinus banksiana</i>	
2475	USA	Zavitkovski, J., et al.	1981	47.67	-1.00	*	330	.	.	314	.	.	.		<i>Pinus banksiana</i>	
441	Mexico	Zedler, J., et al.	1978	32.58	-117.17	?	.	.	630	299	.	.	.	Wetland / salt-marsh	Mixed succulents	
435	USA	Zedler, J., et al.	1978	32.58	-117.17	*	.	.	920	437	.	.	.	Wetland / salt-marsh	<i>Spartina foliosa</i>	
428	USA	*	1975	40.50	-124.25	?	265	.	.	252	.	.	.		<i>Cupressus pygmaea</i> ; <i>Pinus contorta</i>	
429	USA	*	1975	40.50	-124.25	?	1020	.	.	969	.	.	.		<i>Pinus muricata</i>	
430	USA	*	1975	40.50	-124.25	?	1335	.	.	1268	.	.	.		<i>Sequoia sempervirens</i>	

## REFERENCES TO APPENDIX

The following bibliography contains 858 original literature reference sources of data on net primary productivity (NPP). Literature that is not directly cross-referenced to NPP records in Table A is marked with an asterisk (\*). Most database, spreadsheet, or word-processor programs should enable users of the electronic version of this report to separate these more than 500 asterisked references from the rest.

\*Abee, A.; Lavender, D. 1972. Nutrient cycling in throughfall and litterfall in 450-year-old Douglas-fir stands. *Research on Coniferous Forest Ecosystems, Portland Oregon*, pp. 133-143.

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