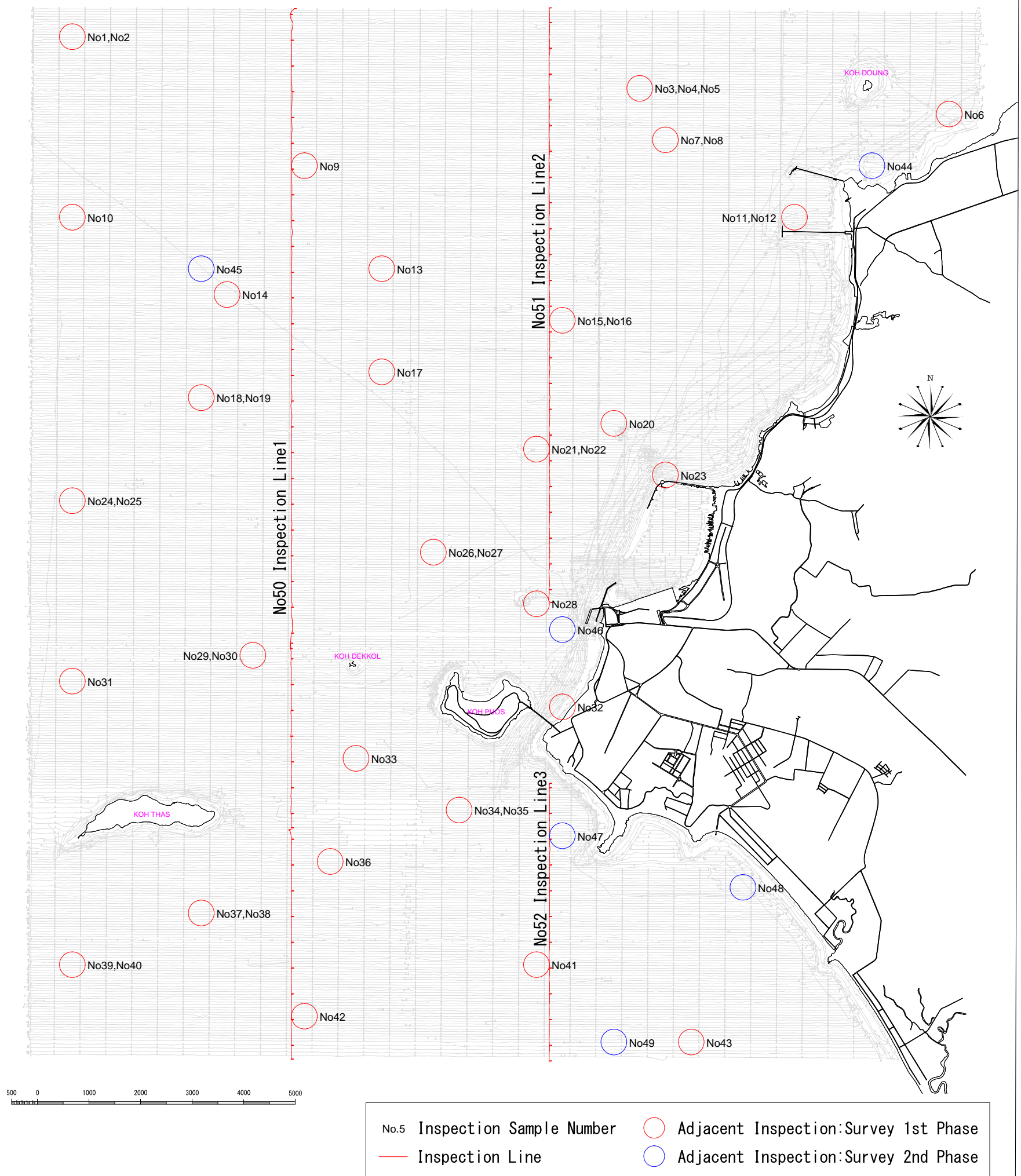


# S-44: IHO Standards for Hydrographic Survey Depth Data Integrity Inspection



## S-44 Multi-beam Echosounder Data Inspection

Area : Sihanoukville harbour

Inspection Sample No	Inspection Data		Surveyed Data		Total Number of Sample data	Invalid data		Mean Difference (m)	Result
	Survey Date	File name	Surveyed Date	File name		Number of data	Percentage(%)		
1	20-Feb-14	LAS1_41_0220	7-May-14	LAS1_41_0220	1,006	0	0.00	0.03	Valid
2	26-Feb-14	LAS1_41_0226	8-May-14	LAS1_41_0226	574	0	0.00	0.01	Valid
3	19-Feb-14	LAS1_139_0219	6-May-14	LAS1_139_0219	897	0	0.00	0.02	Valid
4	27-Feb-14	LAS1_139_0227	6-May-14	LAS1_139_0227	383	0	0.00	0.07	Valid
5	24-Mar-14	LAS1_139_0324	6-May-14	LAS1_139_0324	513	0	0.00	0.00	Valid
6	20-Feb-14	LAS1_189_0220	12-Mar-14	LAS1_189_0220	7	0	0.00	-0.01	Valid
7	18-Feb-14	LAS1_216_0218	2-May-14	LAS1_216_0218	1,079	0	0.00	0.05	Valid
8	22-Mar-14	LAS1_216_0322	5-May-14	LAS1_216_0322	231	0	0.00	0.03	Valid
9	28-Feb-14	LAS1_239_0228	30-Apr-14	LAS1_239_0228	635	0	0.00	0.08	Valid
10	14-Feb-14	LAS1_299_0214	28-Apr-14	LAS1_299_0214	1,401	0	0.00	0.01	Valid
11	20-Feb-14	LAS1_327_0220	28-Apr-14	LAS1_327_0220	101	0	0.00	0.08	Valid
12	28-Apr-14	LAS1_327_0428	10-Mar-14	LAS1_327_0428	2	0	0.00	-0.03	Valid
13	14-Feb-14	LAS1_377_0214	25-Apr-14	LAS1_377_0214	1,097	0	0.00	0.00	Valid
14	12-Feb-14	LAS1_404_0212	24-Apr-14	LAS1_404_0212	491	0	0.00	-0.01	Valid
15	10-Feb-14	LAS1_450_0210	23-Apr-14	LAS1_450_0210	1,276	0	0.00	0.01	Valid
16	3-Mar-14	LAS1_450_0303	23-Apr-14	LAS1_450_0303	802	0	0.00	0.01	Valid
17	7-Feb-14	LAS1_509_0207	22-Apr-14	LAS1_509_0207	1,500	0	0.00	-0.05	Valid
18	7-Feb-14	LAS1_535_0207	21-Apr-14	LAS1_535_0207	1,564	0	0.00	0.04	Valid
19	18-Mar-14	LAS1_535_0318	21-Apr-14	LAS1_535_0421	1,519	0	0.00	0.04	Valid
20	6-Feb-14	LAS1_583_0206	11-Mar-14	LAS1_583_0206	42	0	0.00	-0.08	Valid
21	6-Feb-14	LAS1_610_0206	25-Mar-14	LAS1_610_0325	468	0	0.00	0.00	Valid
22	19-Mar-14	LAS1_610_0319	25-Mar-14	LAS1_610_0319	396	0	0.00	0.02	Valid
23	10-Mar-14	LAS1_645_SB0310	22-Apr-14	LAS1_645_SB0310	1	0	0.00	-0.01	Valid
24	5-Feb-14	LAS1_651_0205	4-Apr-14	LAS1_651_0205	1,182	0	0.00	0.04	Valid
25	19-Mar-14	LAS1_651_0319	4-Apr-14	LAS1_651_0319	890	0	0.00	0.08	Valid
26	4-Feb-14	LAS1_720_0204	1-Apr-14	LAS1_720_0204	390	0	0.00	0.01	Valid
27	20-Mar-14	LAS1_720_0320	3-Apr-14	LAS1_720_0403	55	0	0.00	0.04	Valid
28	15-Feb-14	LAS1_778_0215	1-Apr-14	LAS1_778_SB0401	53	2	3.77	0.10	Valid
29	3-Feb-14	LAS1_817_0203	28-Mar-14	LAS1_817_0328	218	0	0.00	-0.07	Valid
30	3-Feb-14	LAS1_817_0203	31-Mar-14	LAS1_817_0331	3,006	0	0.00	0.06	Valid
31	17-Mar-14	LAS1_833_0317	29-Mar-14	LAS1_833_0329	1,029	0	0.00	0.05	Valid
32	13-Mar-14	LAS1_874_SB0313	2-Apr-14	LAS1_874_SB0402	24	0	0.00	0.05	Valid
33	11-Feb-14	LAS1_911_0211	2-Apr-14	LAS1_911_0211	3,631	0	0.00	0.03	Valid
34	21-Mar-14	LAS1_958_0321	7-Apr-14	LAS1_958_0407	207	0	0.00	0.02	Valid
35	21-Mar-14	LAS1_958_0321	7-Apr-14	LAS1_958_0407	207	0	0.00	0.02	Valid
36	26-Mar-14	LAS1_1008_0326	8-Apr-14	LAS1_1008_0408	2,428	0	0.00	-0.03	Valid
37	21-Mar-14	LAS1_1064_0221	17-Apr-14	LAS1_1064_0417	57	0	0.00	-0.02	Valid
38	21-Mar-14	LAS1_1064_0221	18-Apr-14	LAS1_1064_0418	43	0	0.00	-0.15	Valid
39	4-Mar-14	LAS1_1122_0304	11-Apr-14	LAS1_1122_0304	3,311	0	0.00	-0.03	Valid
40	27-Mar-14	LAS1_1122_0327	11-Apr-14	LAS1_1122_0411	1,794	0	0.00	0.03	Valid
41	25-Feb-14	LAS1_1140_0225	11-Apr-14	LAS1_1140_0225	1,457	0	0.00	-0.02	Valid
42	27-Mar-14	LAS1_1198_0327	10-Apr-14	LAS1_1198_0410	458	0	0.00	0.01	Valid

## S-44 Multi-beam Echosounder Data Inspection

Area : Sihanoukville harbour

Inspection Sample No	Inspection Data		Surveyed Data		Total Number of Sample data	Invalid data		Mean Difference (m)	Result
	Survey Date	File name	Surveyed Date	File name		Number of data	Percentage(%)		
43	24-Feb-14	LAS1_1247_0224	9-Apr-14	LAS1_1247_0409	49	0	0.00	-0.03	Valid
44	25-Nov-14	LAS2_261_1125	5-Dec-14	LAS2_261_1205	213	0	0.00	-0.03	Valid
45	24-Nov-14	LAS2_370_1124	29-Nov-14	LAS2_370_1129	572	0	0.00	-0.05	Valid
46	26-Nov-14	LAS2_805_1126	27-Nov-14	LAS2_805_1126	595	0	0.00	0.04	Valid
47	15-Dec-14	LAS2_988_1215	16-Dec-14	LAS2_988_1216	587	0	0.00	0.00	Valid
48	20-Nov-14	LAS2_1054_1120	16-Dec-14	LAS2_1054_1120	193	0	0.00	0.08	Valid
49	19-Nov-14	LAS2_1244_1119	21-Nov-14	LAS2_1244_1121	447	0	0.00	-0.03	Valid
50	15-Dec-14	Inspection Line1	Multi-days	Multi-files	62,248	0	0.00	0.02	Valid
51	15-Dec-14	Inspection Line2	Multi-days	Multi-files	27,440	0	0.00	0.03	Valid
52	15-Dec-14	Inspection Line3	Multi-days	Multi-files	12,190	0	0.00	0.00	Valid

&lt;Inspection Method&gt;

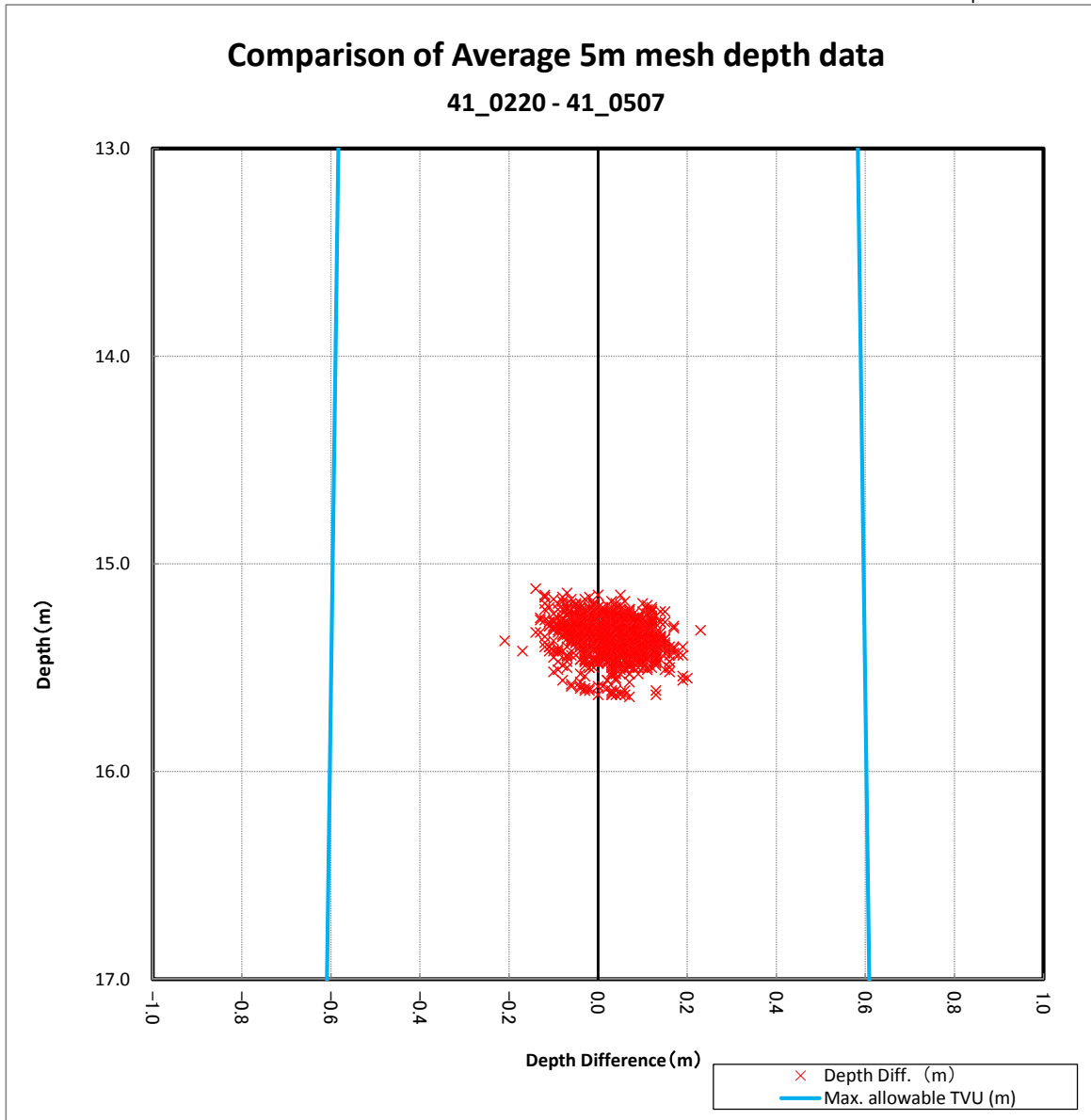
Comparing Post-processed average 5x5m mesh data of 2 survey line data which intersected and adjoined line, in the same position and compare the de

### Multi-beam Echosounder Data Inspection

No.1

Area: Sihanoukville harbour  
Order: 1a  
Survey Line: LAS1\_41\_0220  
LAS1\_41\_0507  
Number of data 1,006

Number of valid data: 1,006  
Number of invalid data: 0  
Mean Difference: 0.03 m  
Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
a = 0.5 b = 0.013  
d = depth





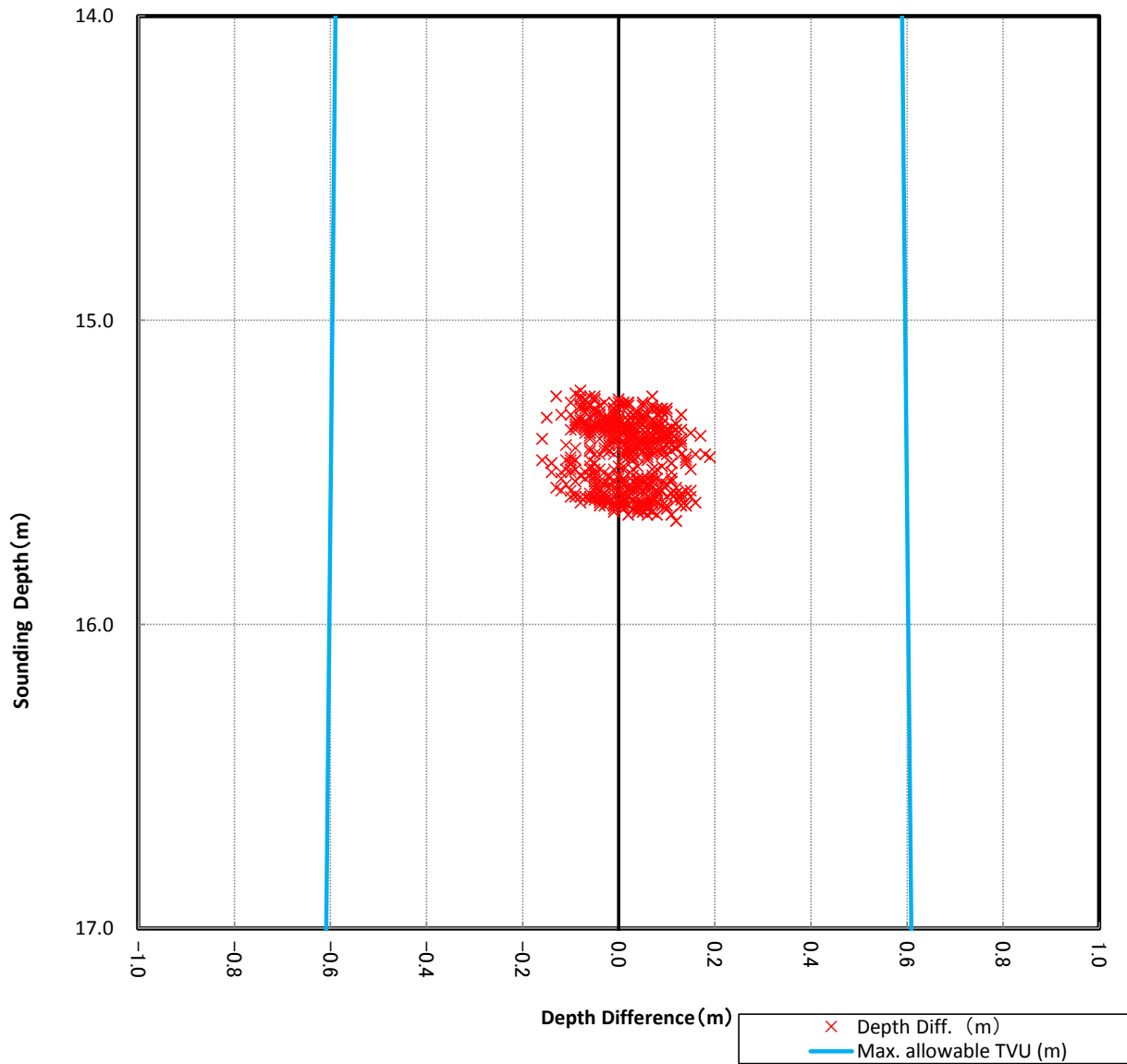
Multi-beam Echosounder Data Inspection

No.2

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_41\_0226  
 LAS1\_41\_0508  
 Number of data 574

Number of valid data: 574  
 Number of invalid data: 0  
 Mean Difference: 0.01 m  
 Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 41\_0226 - 41\_0508



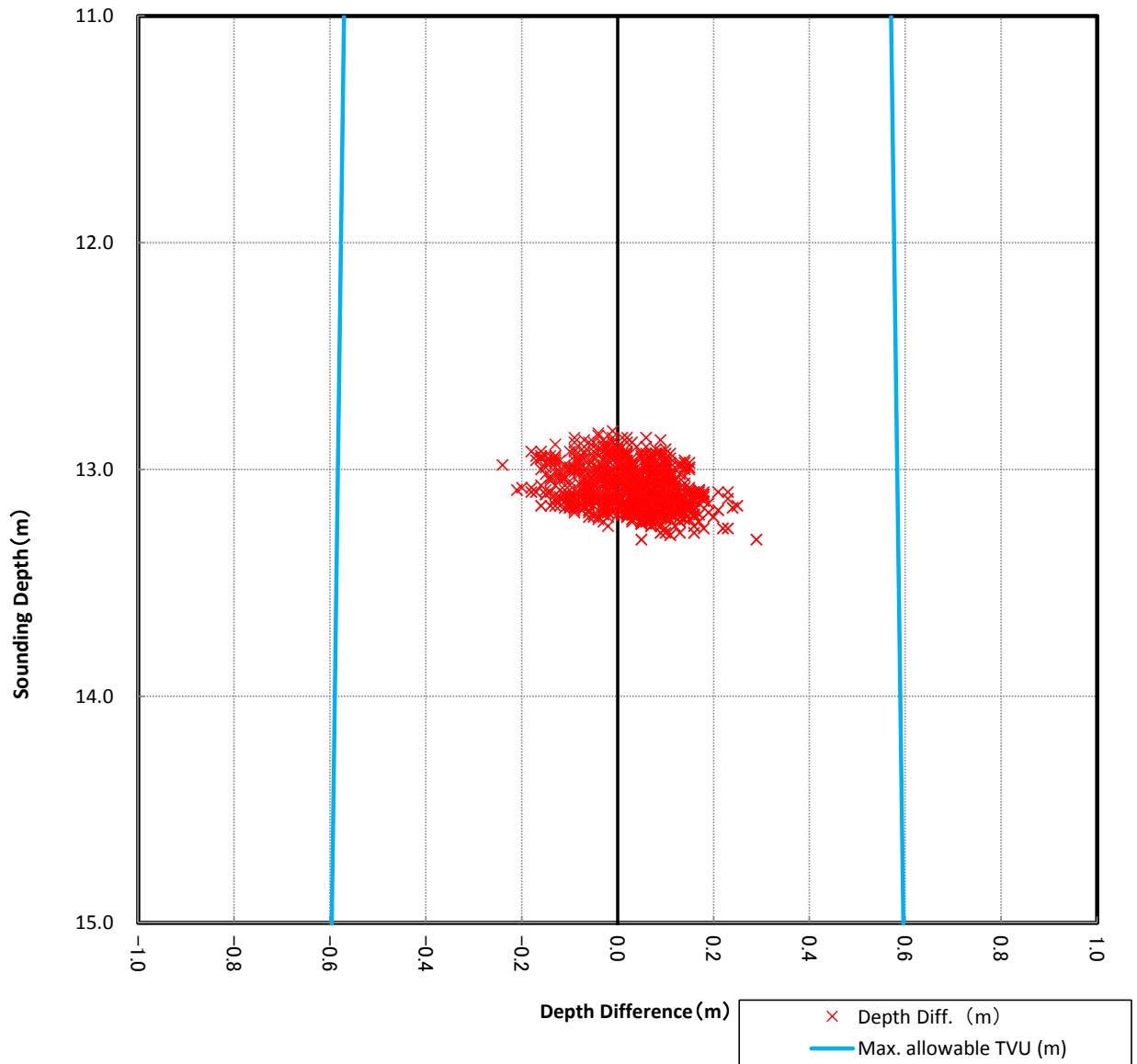
Multi-beam Echosounder Data Inspection

No.3

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_139\_0219  
 LAS1\_139\_0506  
 Number of data 897

Number of valid data: 897  
 Number of invalid data: 0  
 Mean Difference: 0.02 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data**  
 129\_0219 - 139\_0506



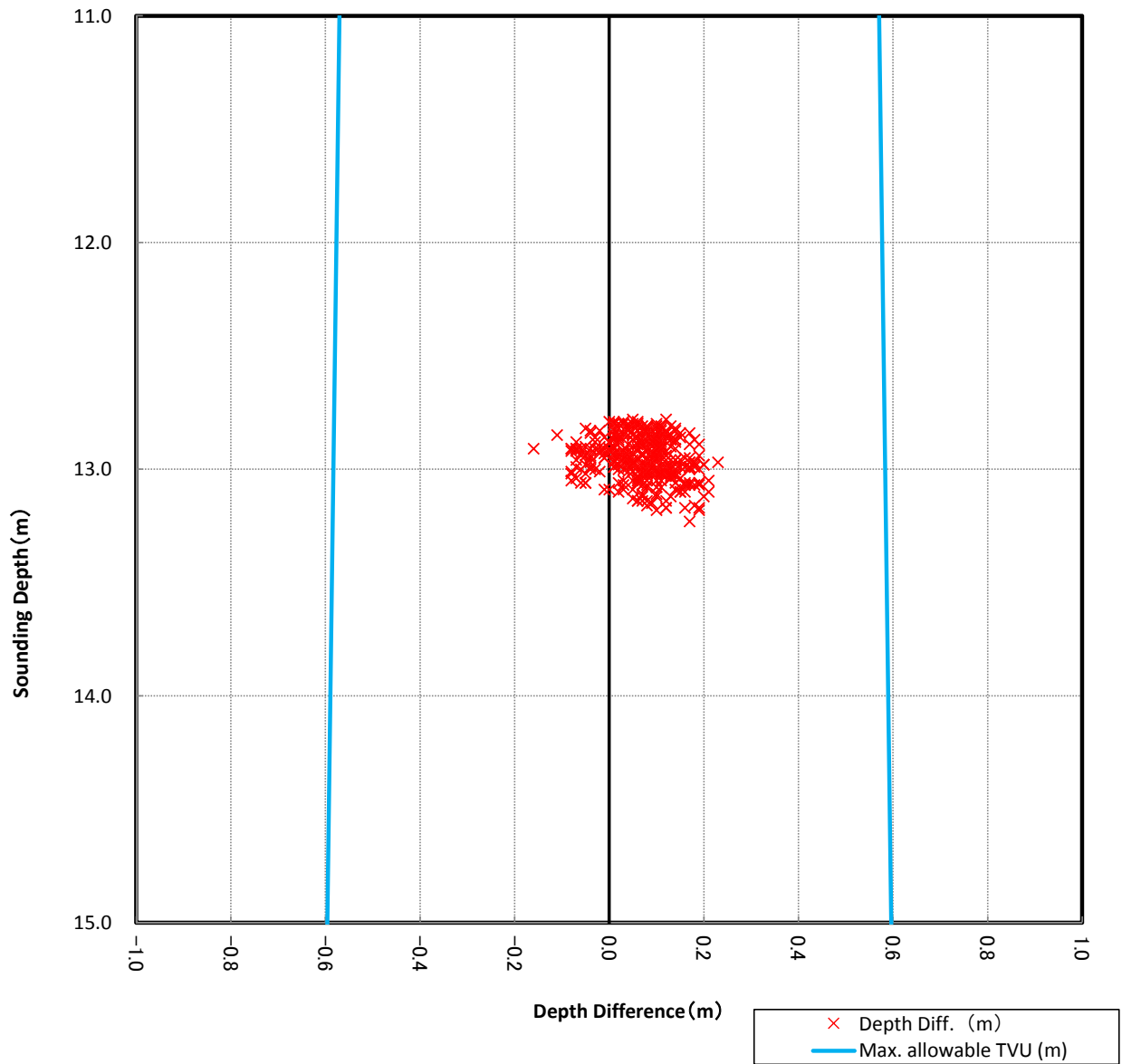
Multi-beam Echosounder Data Inspection

No.4

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_139\_0227  
 LAS1\_139\_0506  
 Number of data 383

Number of valid data: 383  
 Number of invalid data: 0  
 Mean Difference: 0.07 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data**  
**129\_0227 - 139\_0506**



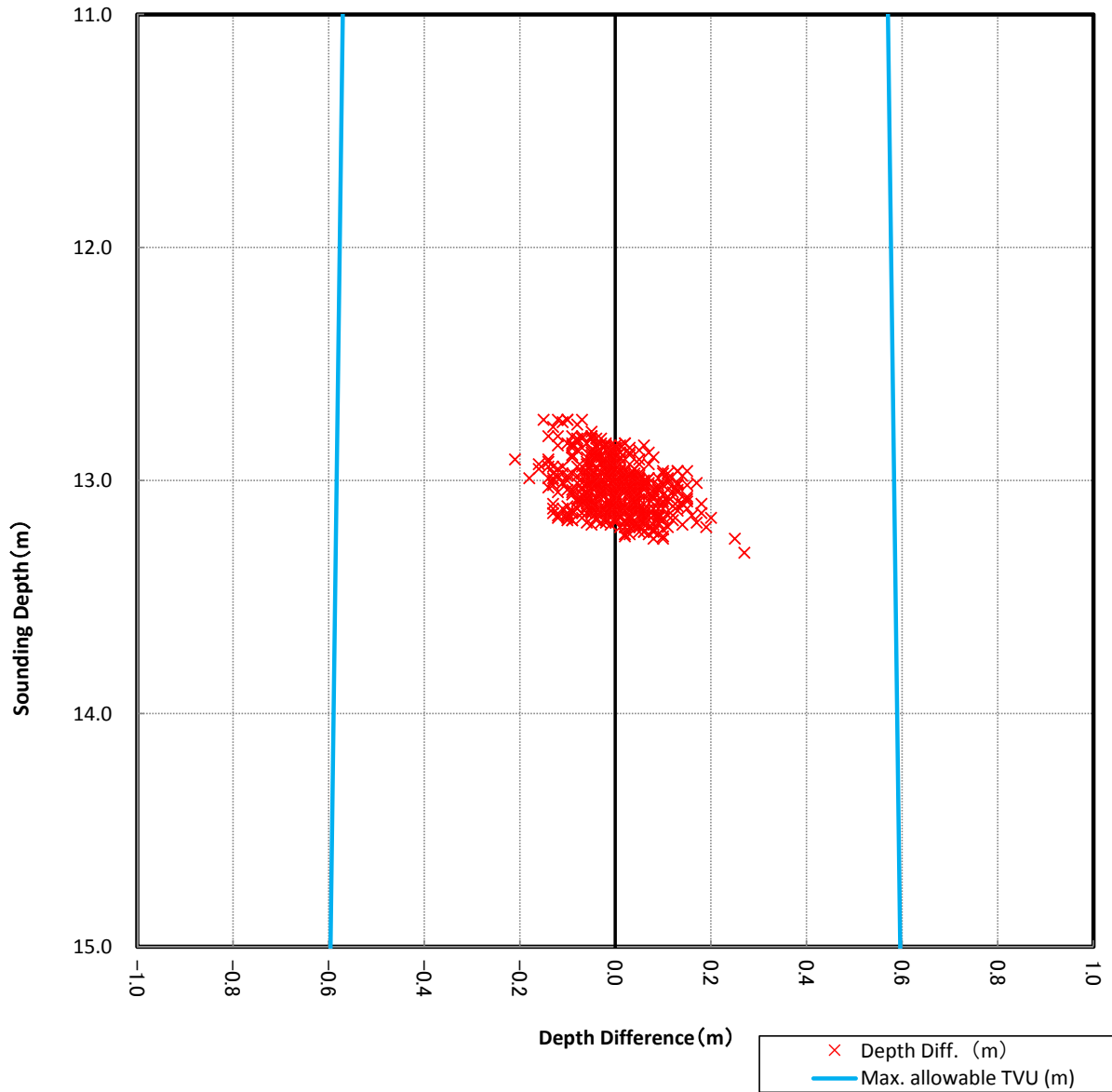
Multi-beam Echosounder Data Inspection

No.5

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_139\_0324  
 LAS1\_139\_0506  
 Number of data 513

Number of valid data: 513  
 Number of invalid data: 0  
 Mean Difference: 0.00 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 139\_0324 - 139\_0506**



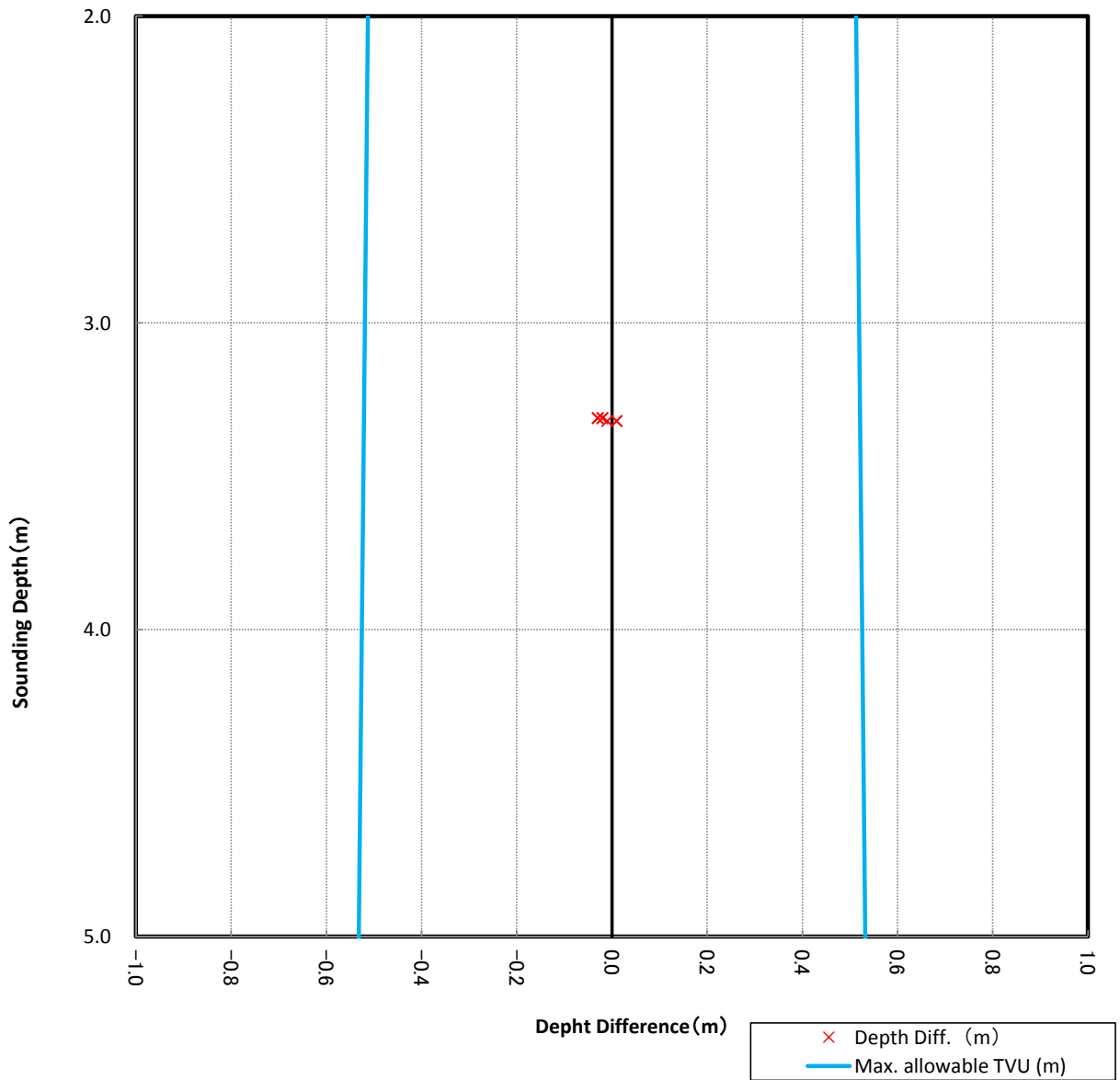
Multi-beam Echosounder Data Inspection

No.6

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS1\_189\_0220  
 LAS1\_189\_SB0312  
 Number of data 7

Number of valid data: 7  
 Number of invalid data: 0  
 Mean Difference: -0.01 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data**  
**189\_0220 - 189\_SB0312**



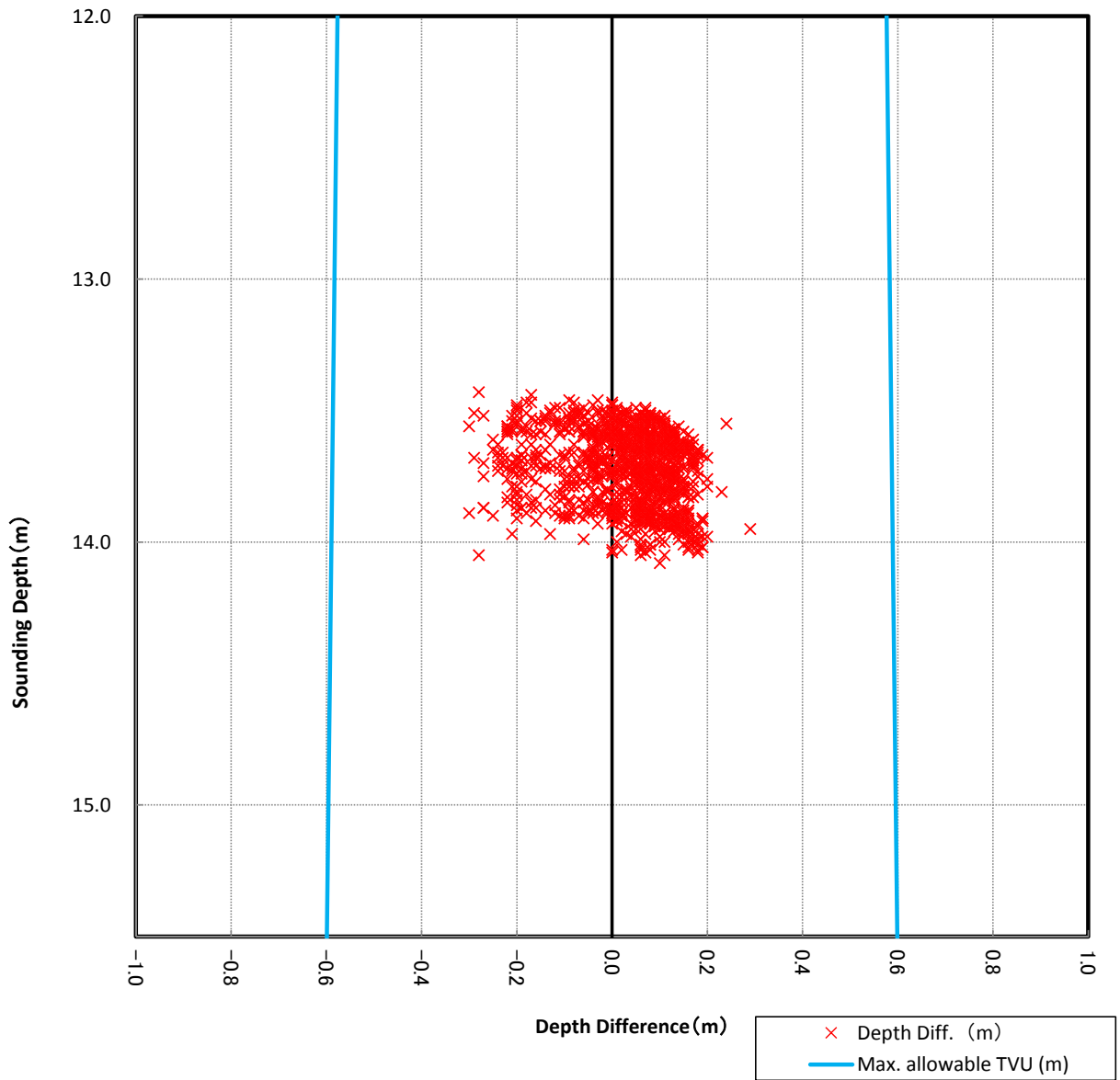
Multi-beam Echosounder Data Inspection

No.7

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_216\_0218  
 LAS1\_216\_0502  
 Number of data 1,079

Number of valid data: 1,079  
 Number of invalid data: 0  
 Mean Difference: 0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 216\_0218 - 216\_0502



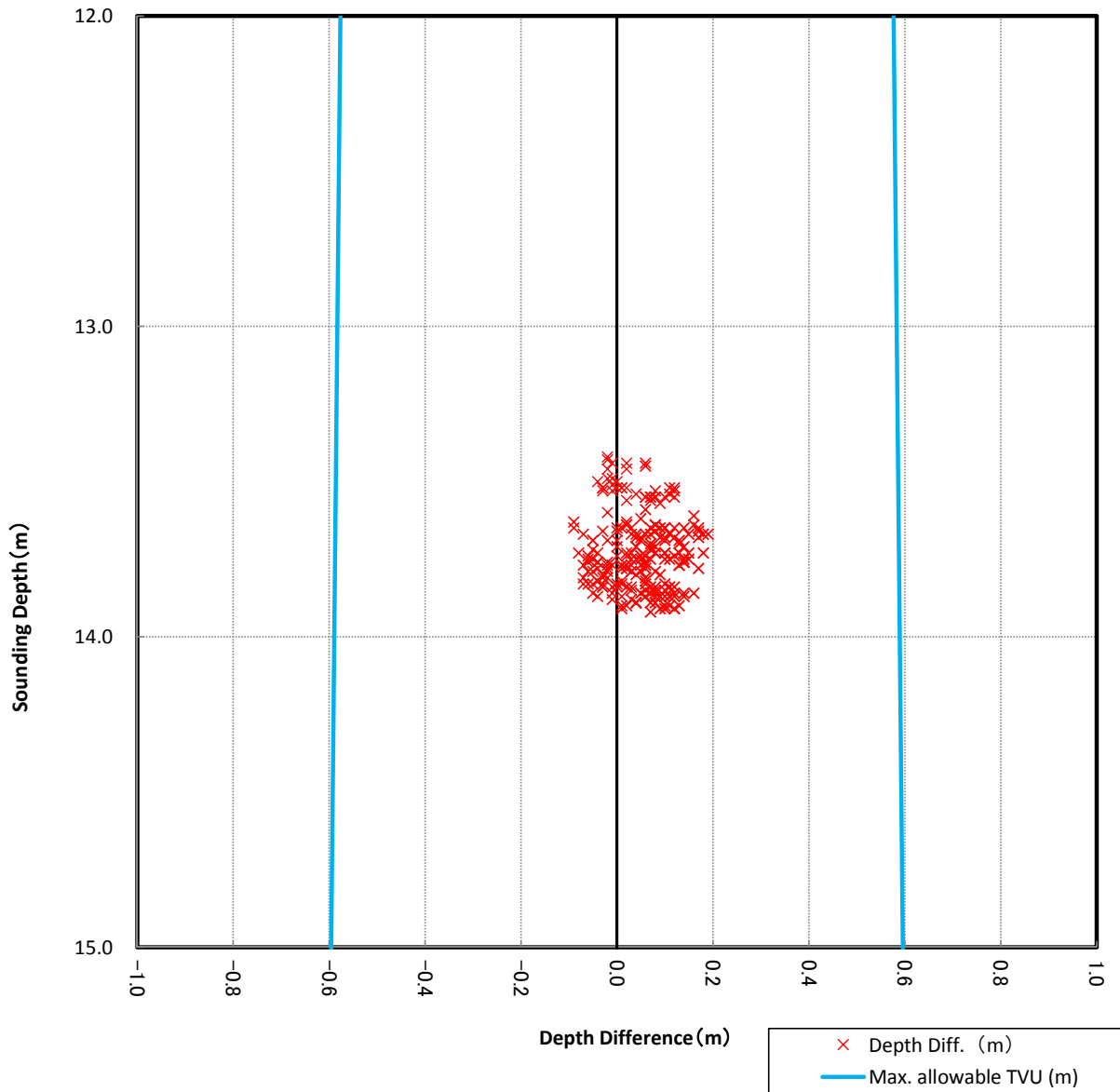
### Multi-beam Echosounder Data Inspection

No.8

Area: Sihanoukville harbour  
Order: 1a  
Survey Line: LAS1\_216\_0322  
LAS1\_216\_0505  
Number of data 231

Number of valid data: 232  
Number of invalid data: 0  
Mean Difference: 0.05 m  
Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
a = 0.5 b = 0.013  
d = depth

### Comparison of Average 5m mesh depth data 216\_0322 - 216\_0505





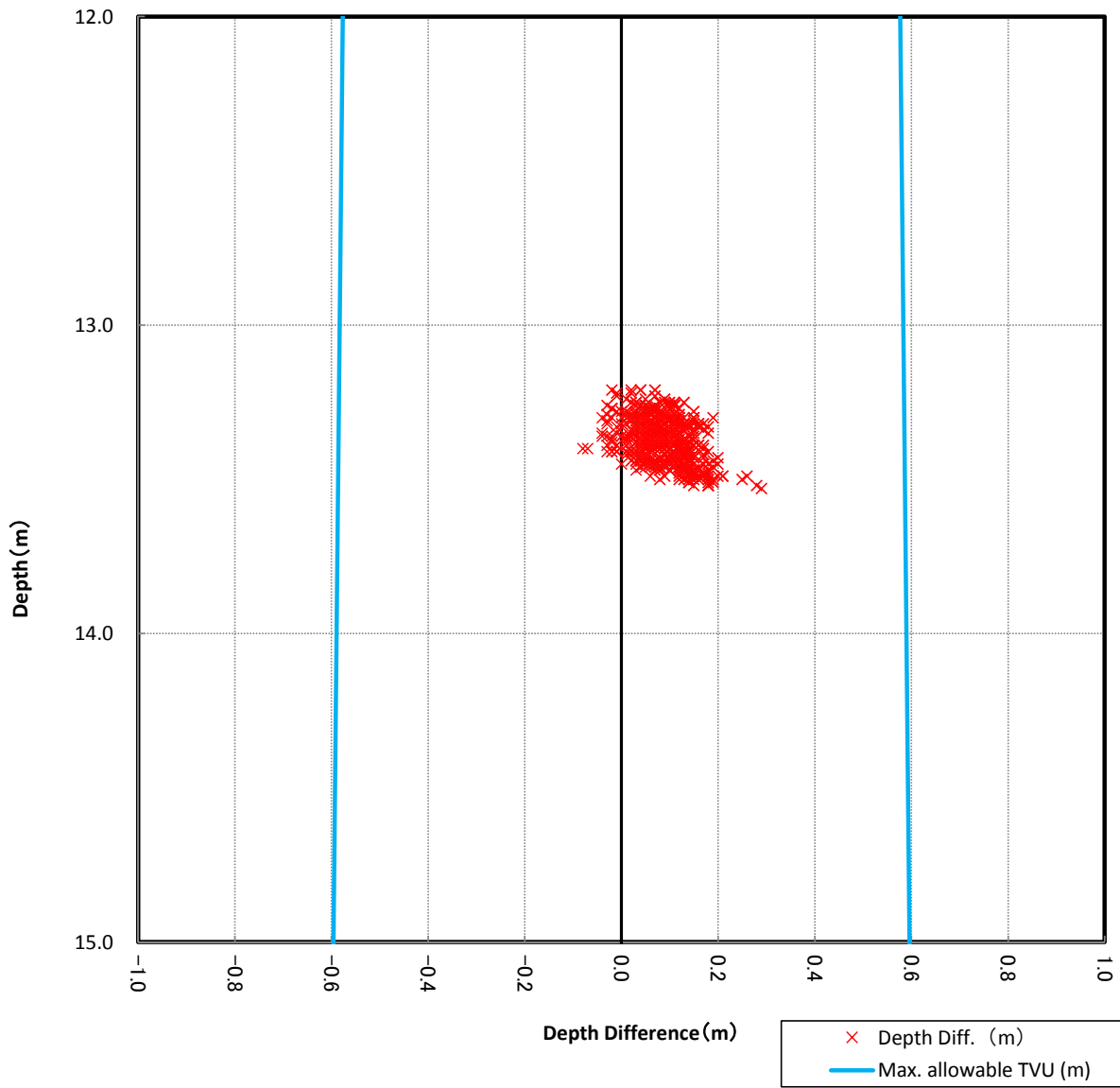
Multi-beam Echosounder Data Inspection

No.9

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_239\_0228  
 LAS1\_239\_0430  
 Number of data 635

Number of valid data: 635  
 Number of invalid data: 0  
 Mean Difference: 0.08 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 239\_0228 - 239\_0430**



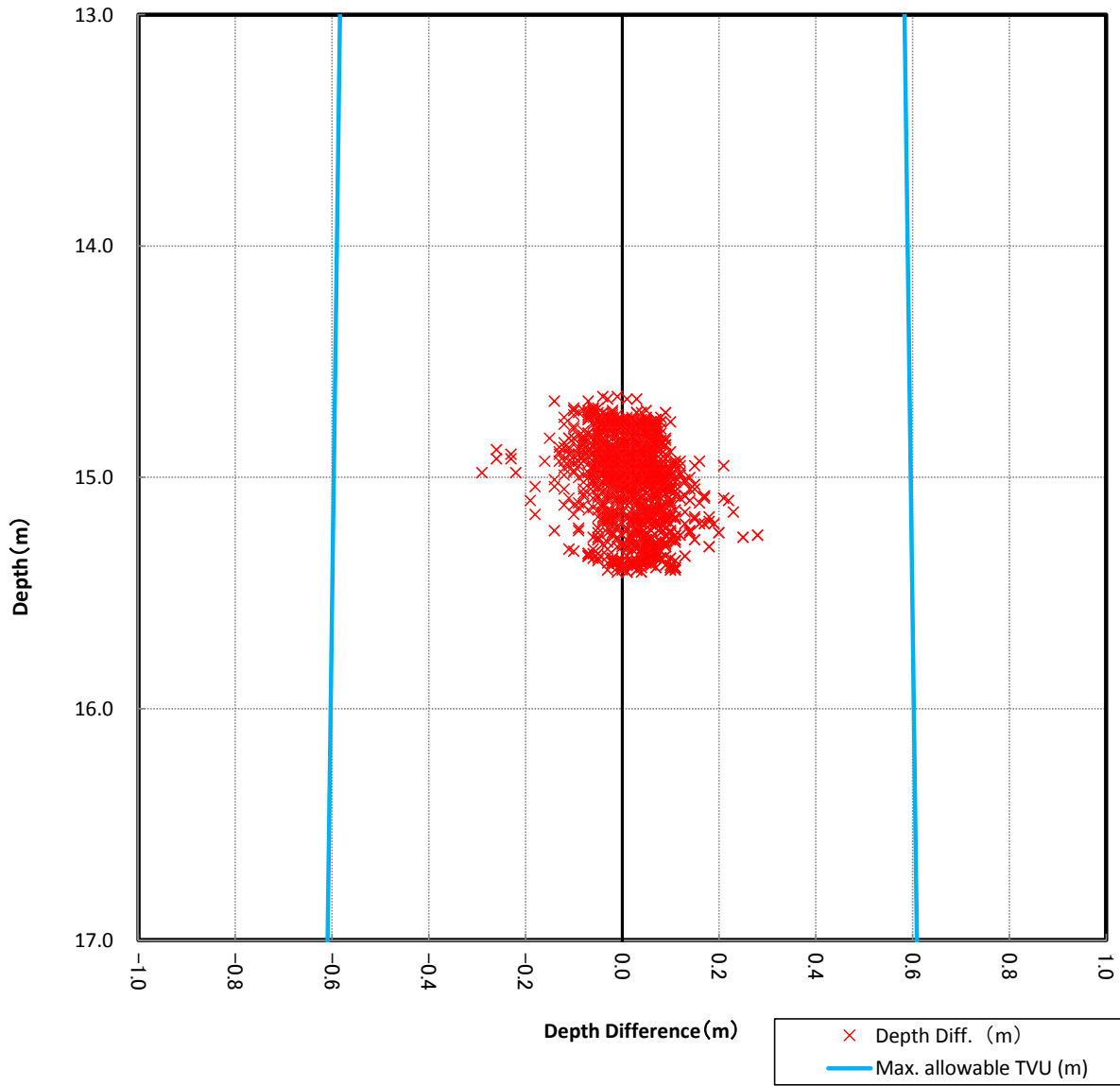
Multi-beam Echosounder Data Inspection

No.10

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_299\_0214  
 LAS1\_299\_0428  
 Number of data 1,401

Number of valid data: 1,401  
 Number of invalid data: 0  
 Mean Difference: 0.01 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 299\_0214 - 299\_0428**



Multi-beam Echosounder Data Inspection

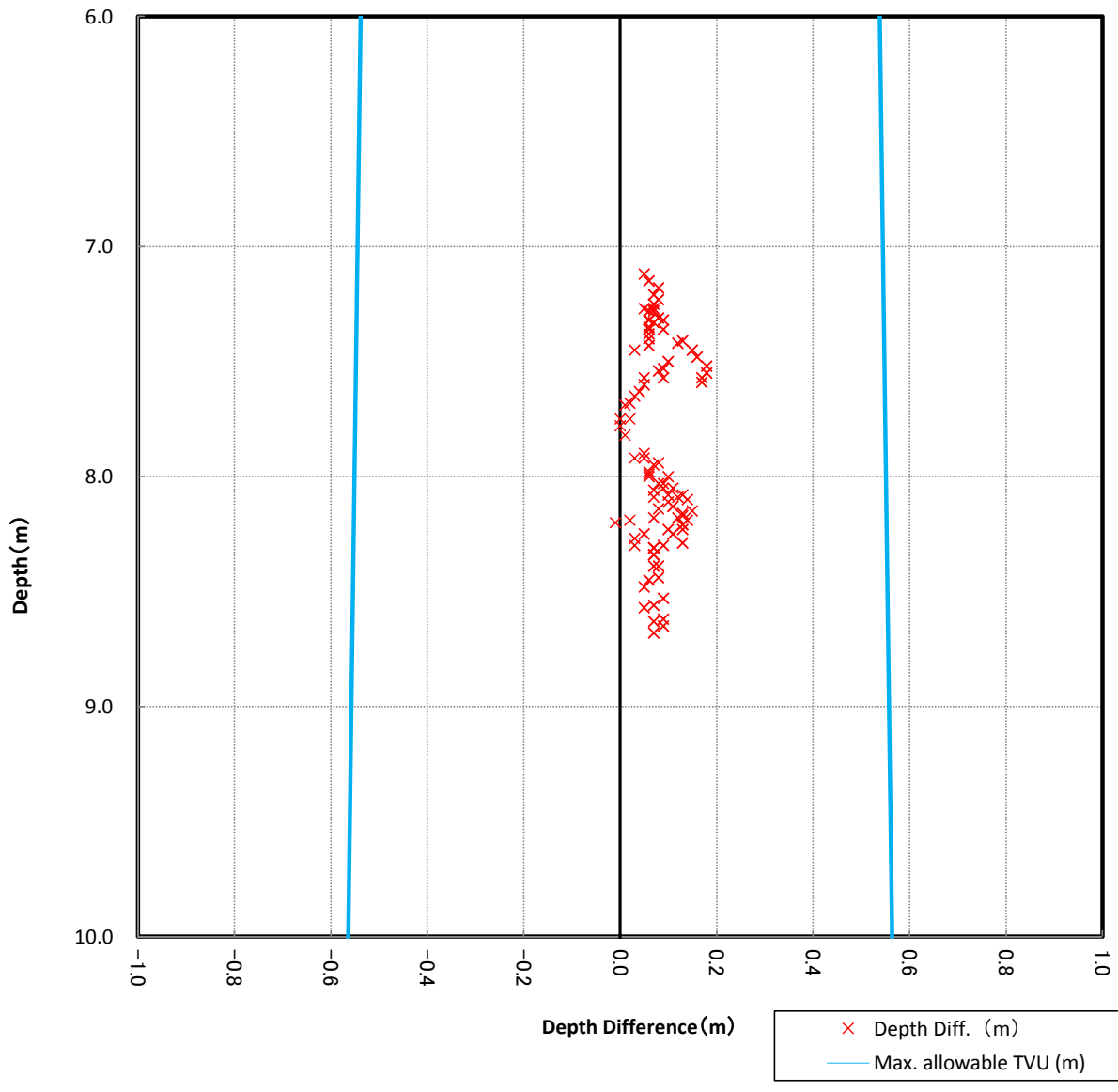
No.11

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS1\_327\_0220  
 LAS1\_327\_0428  
 Number of data 101

Number of valid data: 101  
 Number of invalid data: 0  
 Mean Difference: 0.08 m  
 Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

327\_0220 - 327\_0428



Multi-beam Echosounder Data Inspection

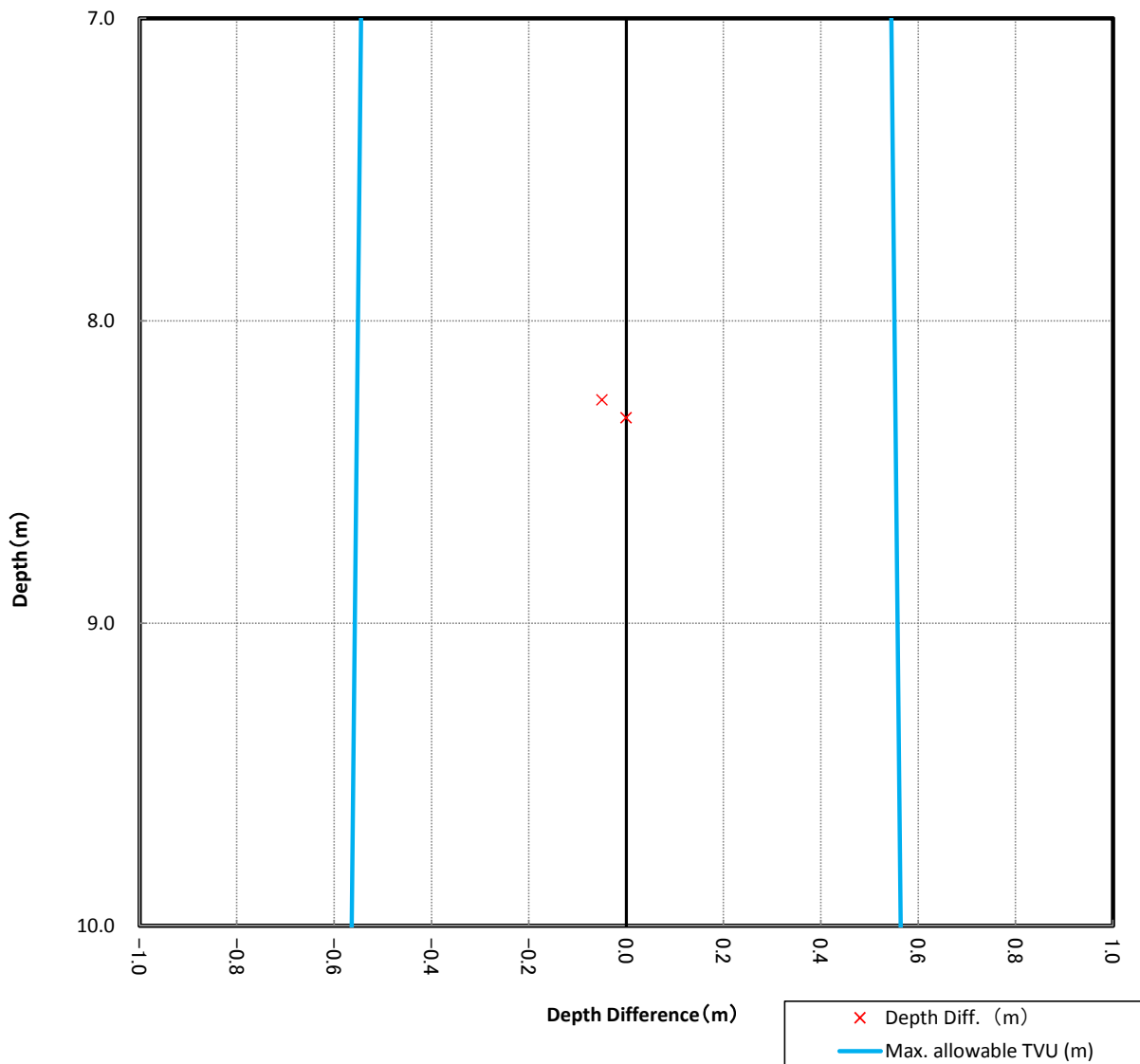
No.12

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS1\_327\_0428  
 LAS1\_327\_SB0310  
 Number of data 2

Number of valid data: 2  
 Number of invalid data: 0  
 Mean Difference: -0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

327\_0428 - 327\_SB0310

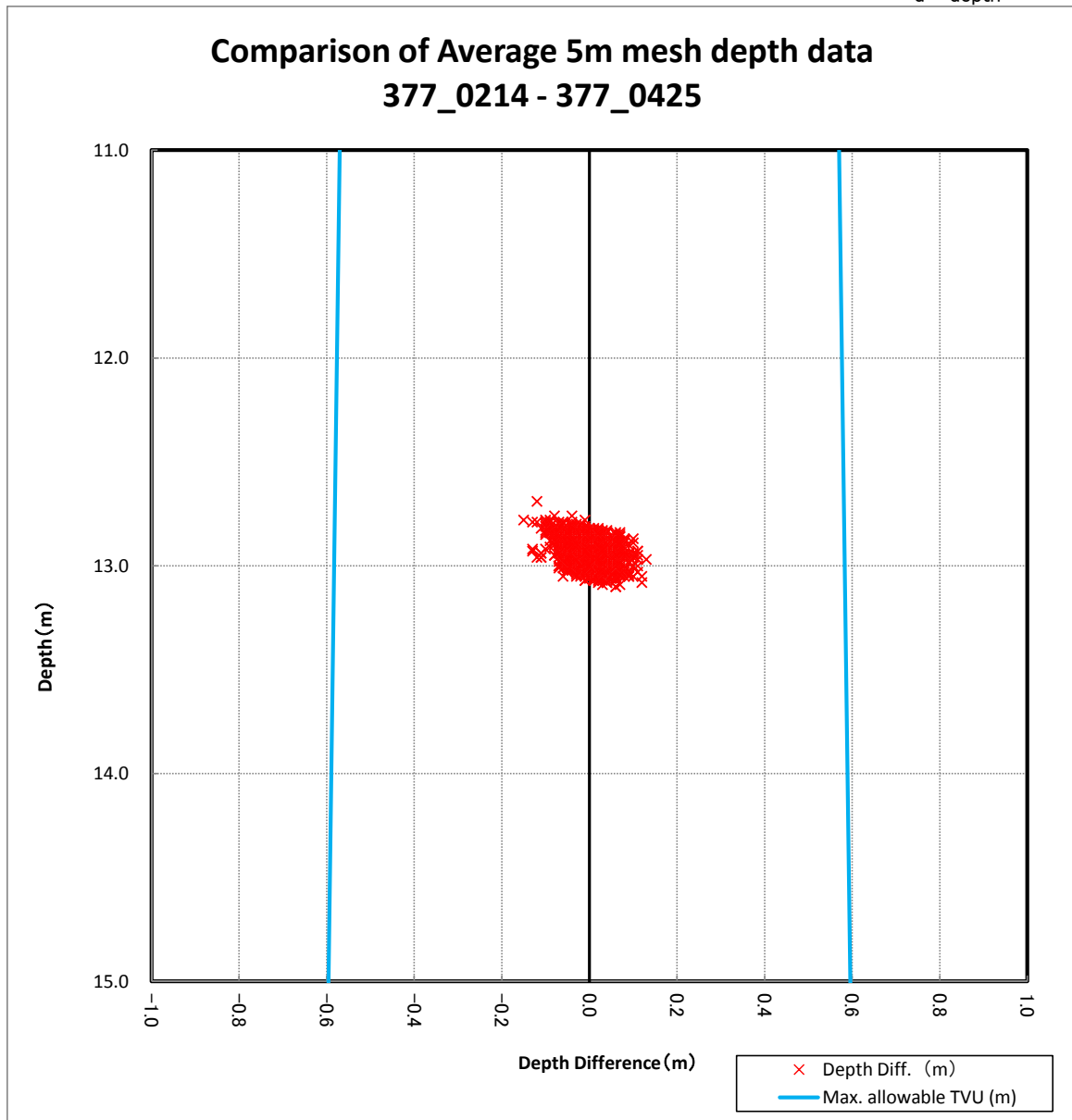


Multi-beam Echosounder Data Inspection

No.13

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_377\_0214  
 LAS1\_377\_0425  
 Number of data 1,097

Number of valid data: 1,097  
 Number of invalid data: 0  
 Mean Difference: 0.00 m  
 Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

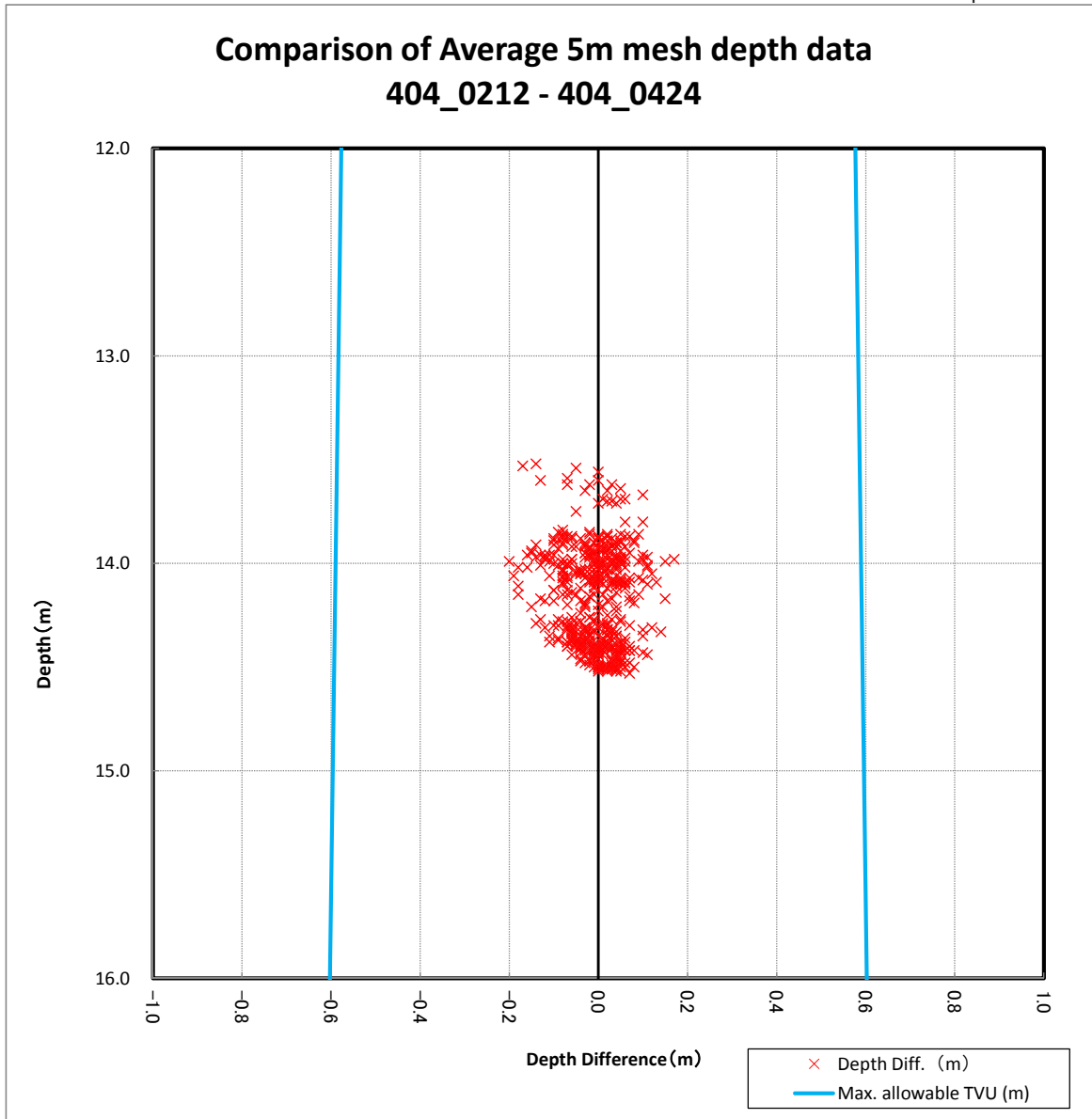


### Multi-beam Echosounder Data Inspection

No.14

Area: Sihanoukville harbour  
Order: 1a  
Survey Line: LAS1\_404\_0212  
LAS1\_404\_0424  
Number of data 491

Number of valid data: 491  
Number of invalid data: 0  
Mean Difference: -0.01 m  
Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
a = 0.5 b = 0.013  
d = depth



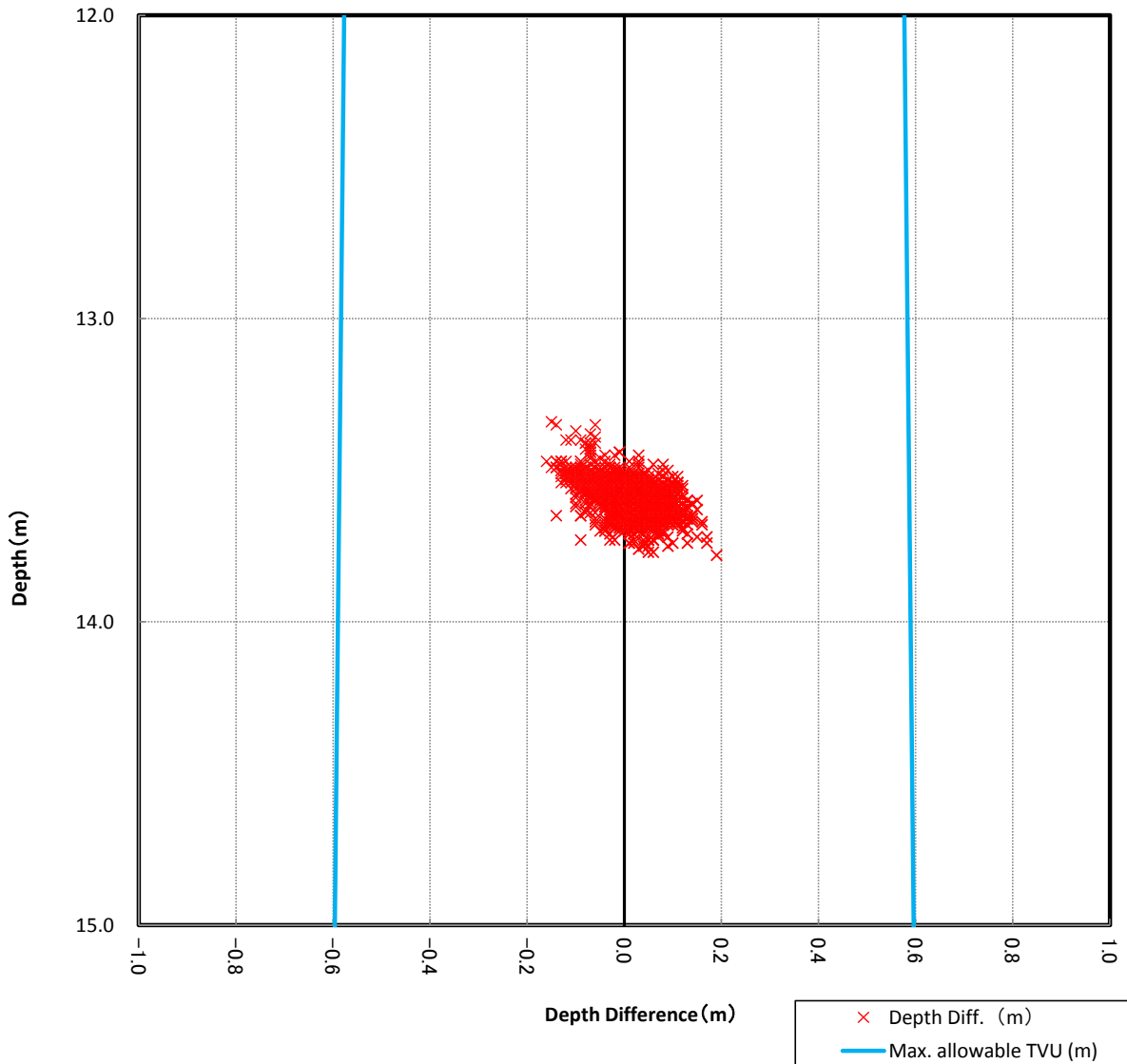
Multi-beam Echosounder Data Inspection

No.15

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_450\_0210  
 LAS1\_450\_0423  
 Number of data 1,276

Number of valid data: 1,276  
 Number of invalid data: 0  
 Mean Difference: 0.01 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 450\_0210 - 450\_0423**





Multi-beam Echosounder Data Inspection

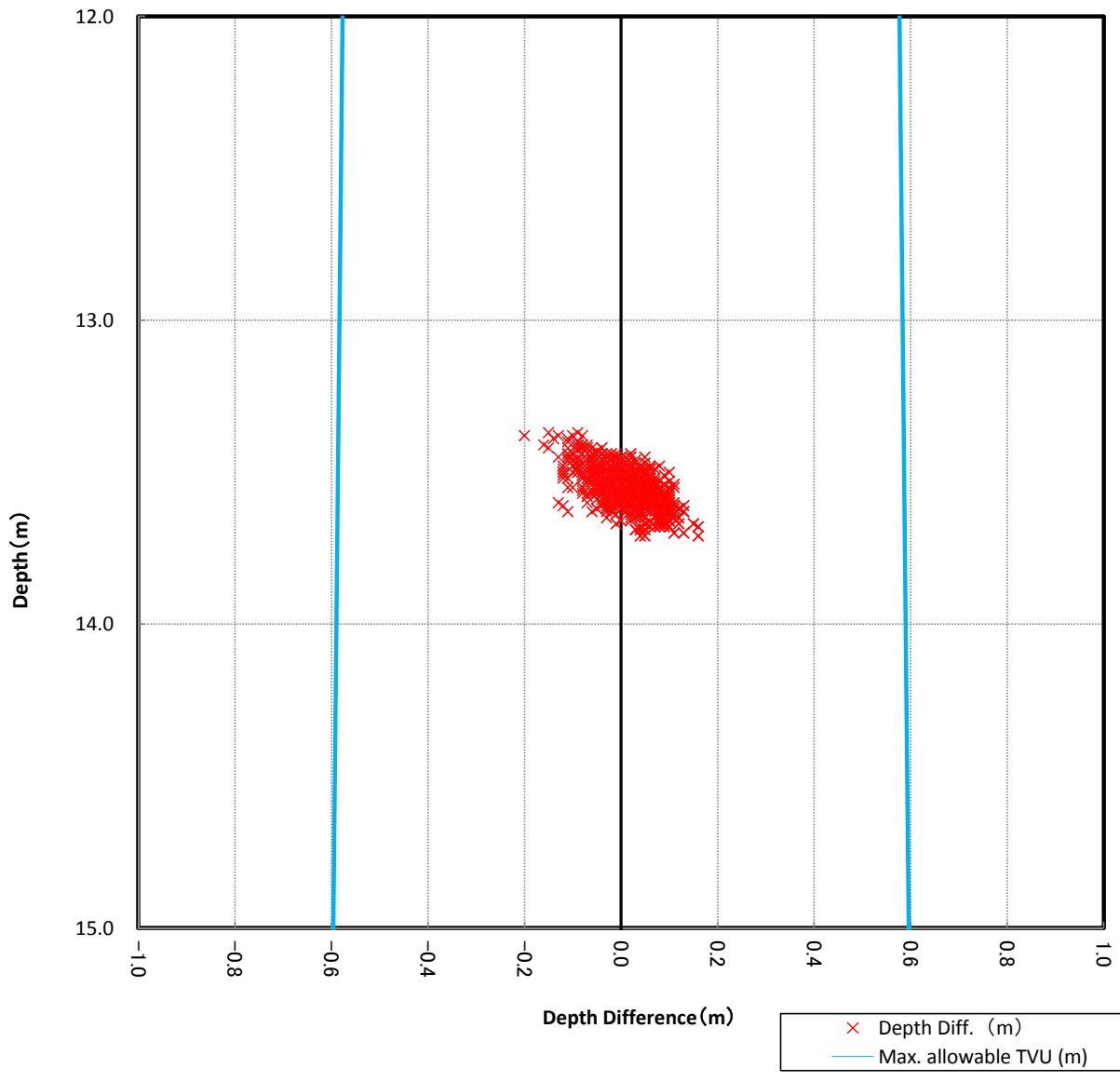
No.16

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_450\_0303  
 LAS1\_450\_0423  
 Number of data 802

Number of valid data: 802  
 Number of invalid data: 0  
 Mean Difference: 0.01 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

450\_0303 - 450\_0423



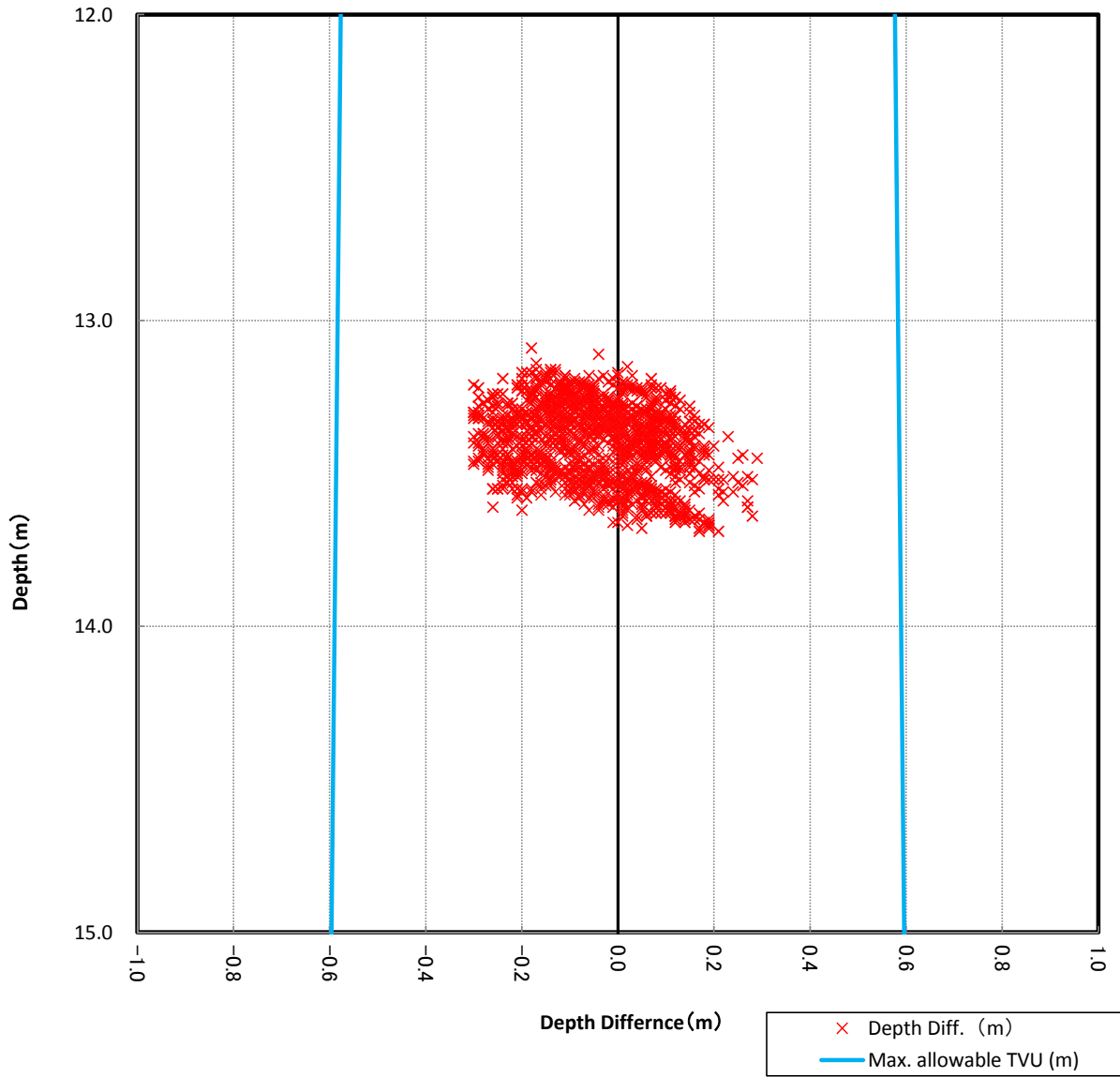
Multi-beam Echosounder Data Inspection

No.17

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_509\_0207  
 LAS1\_509\_0422  
 Number of data 1,500

Number of valid data: 1,500  
 Number of invalid data: 0  
 Mean Difference: -0.05 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 509\_0207 - 509\_0422**



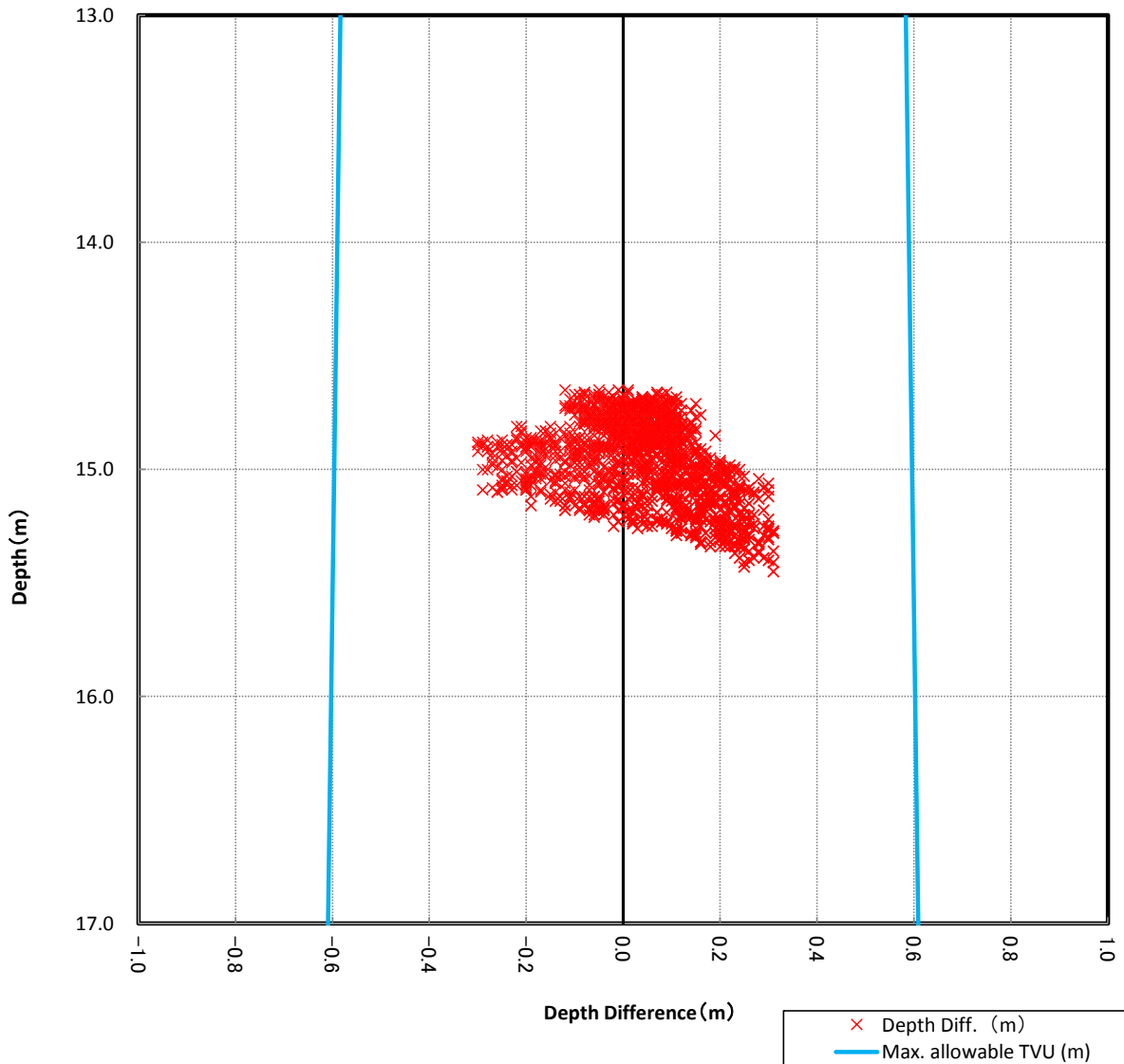
Multi-beam Echosounder Data Inspection

No.18

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_535\_0207  
 LAS1\_535\_0421  
 Number of data 1,564

Number of valid data: 1,564  
 Number of invalid data: 0  
 Mean Difference: 0.04 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 535\_0207 - 535\_0421



Multi-beam Echosounder Data Inspection

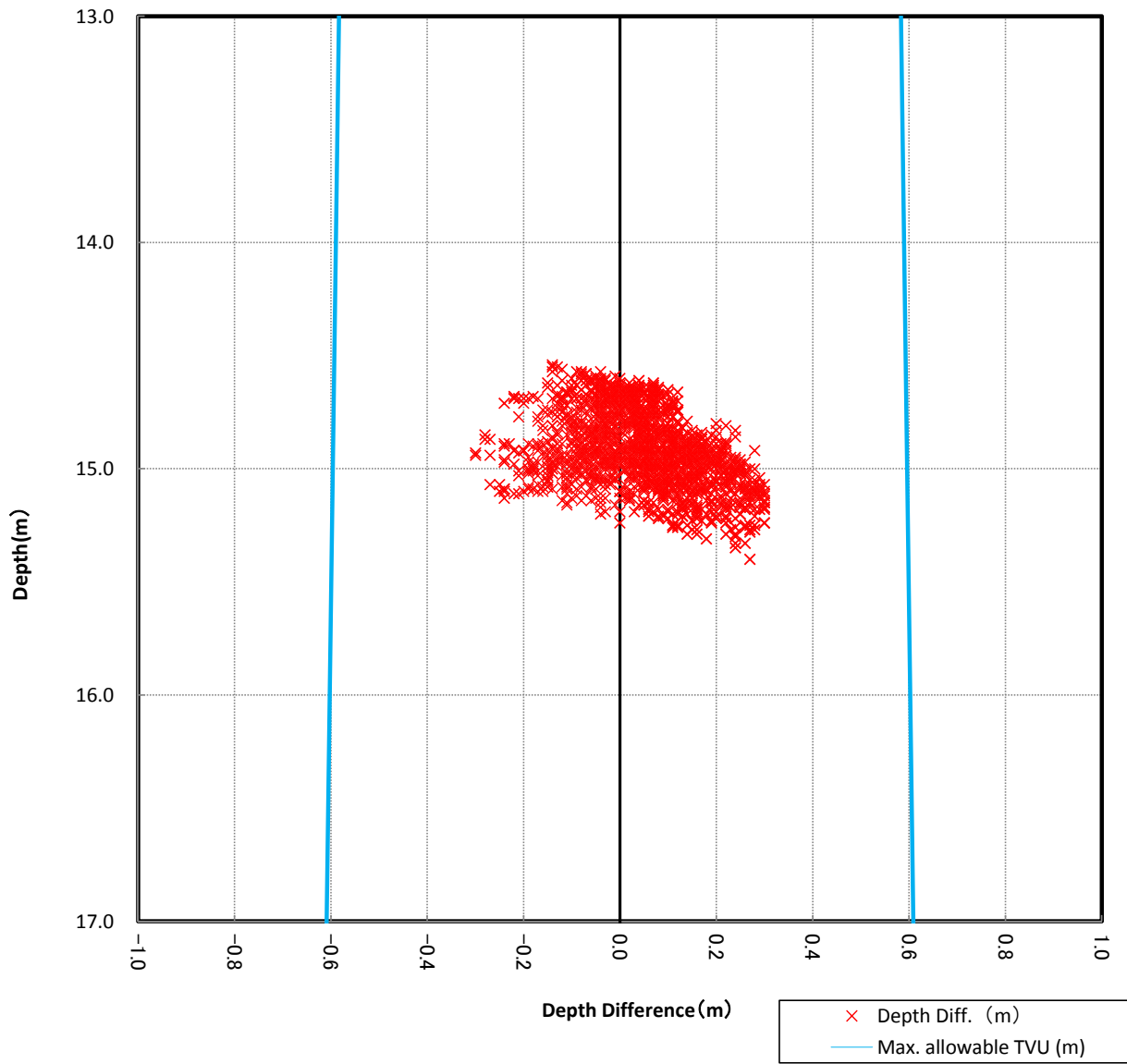
No.19

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_535\_0318  
 LAS1\_535\_0421  
 Number of data 1,519

Number of valid data: 1,519  
 Number of invalid data: 0  
 Mean Difference: 0.04 m  
 Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

535\_0318 - 535\_0421



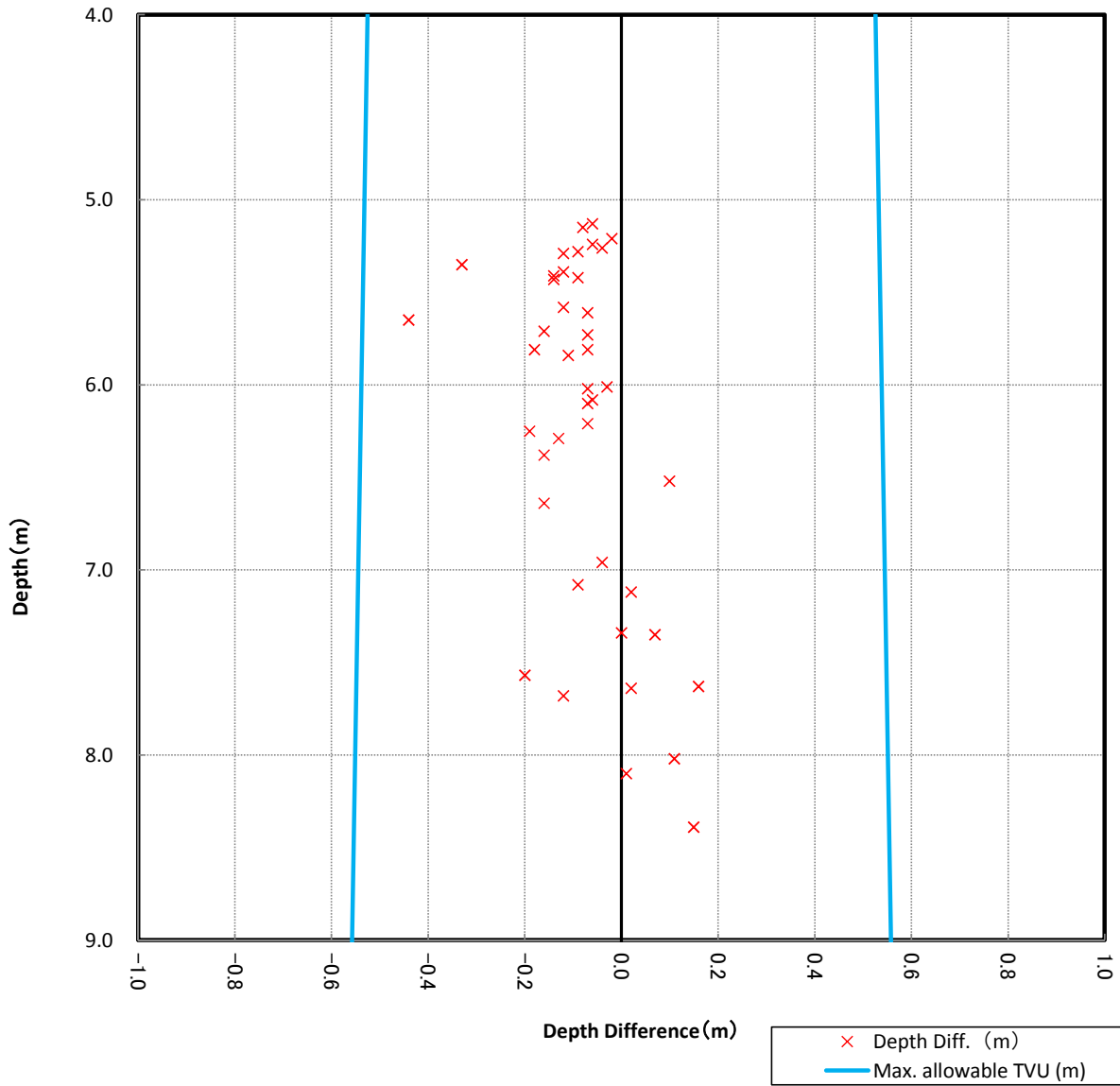
Multi-beam Echosounder Data Inspection

No.20

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS1\_583\_0206  
 LAS1\_583\_SB0311  
 Number of data 42

Number of valid data: 42  
 Number of invalid data: 0  
 Mean Difference: -0.08 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 535\_0207 - 535\_0421**



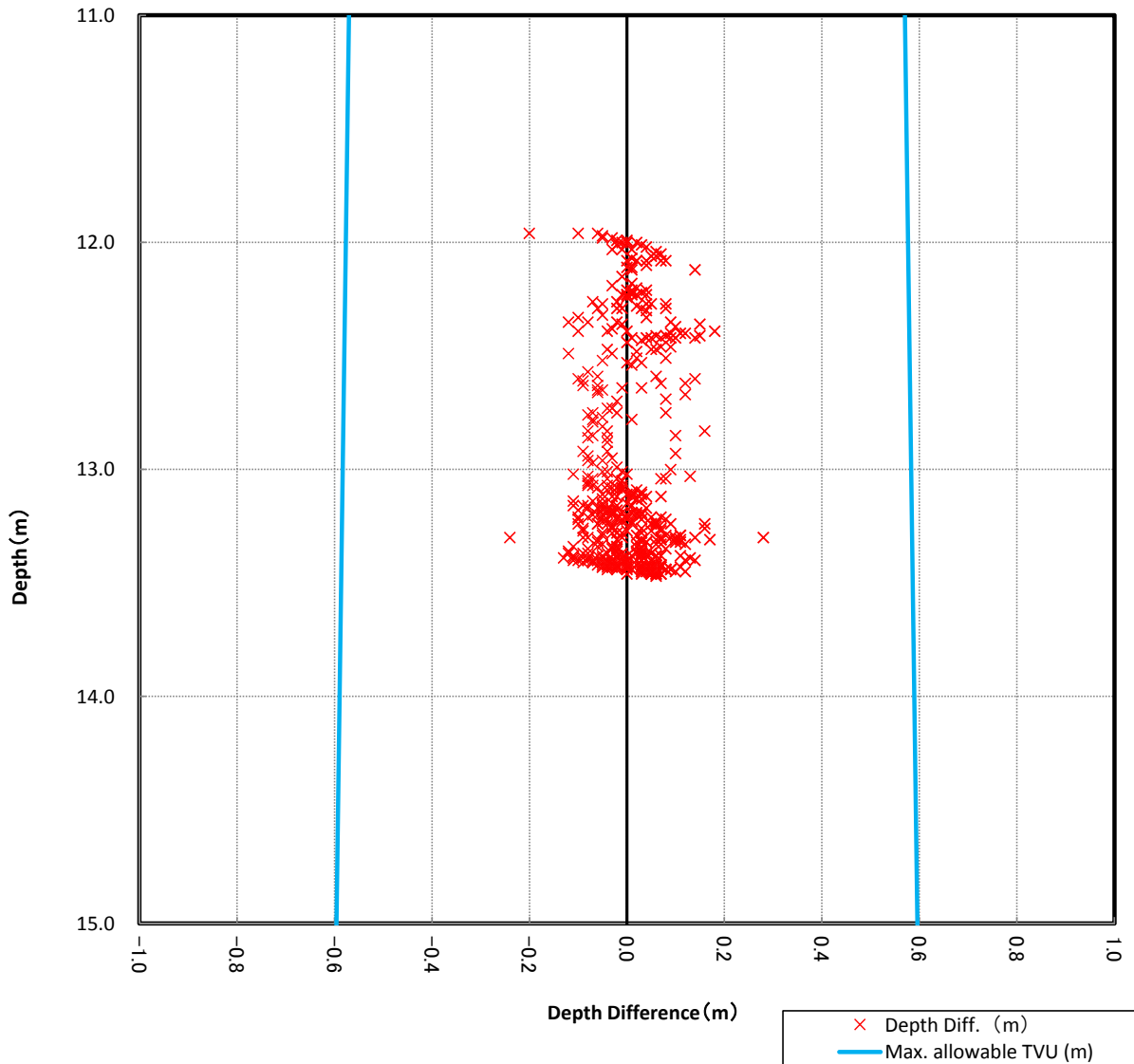
Multi-beam Echosounder Data Inspection

No.21

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_610\_0206  
 LAS1\_610\_0325  
 Number of data 468

Number of valid data: 468  
 Number of invalid data: 0  
 Mean Difference: 0.00 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 610\_0206 - 610\_0325



Multi-beam Echosounder Data Inspection

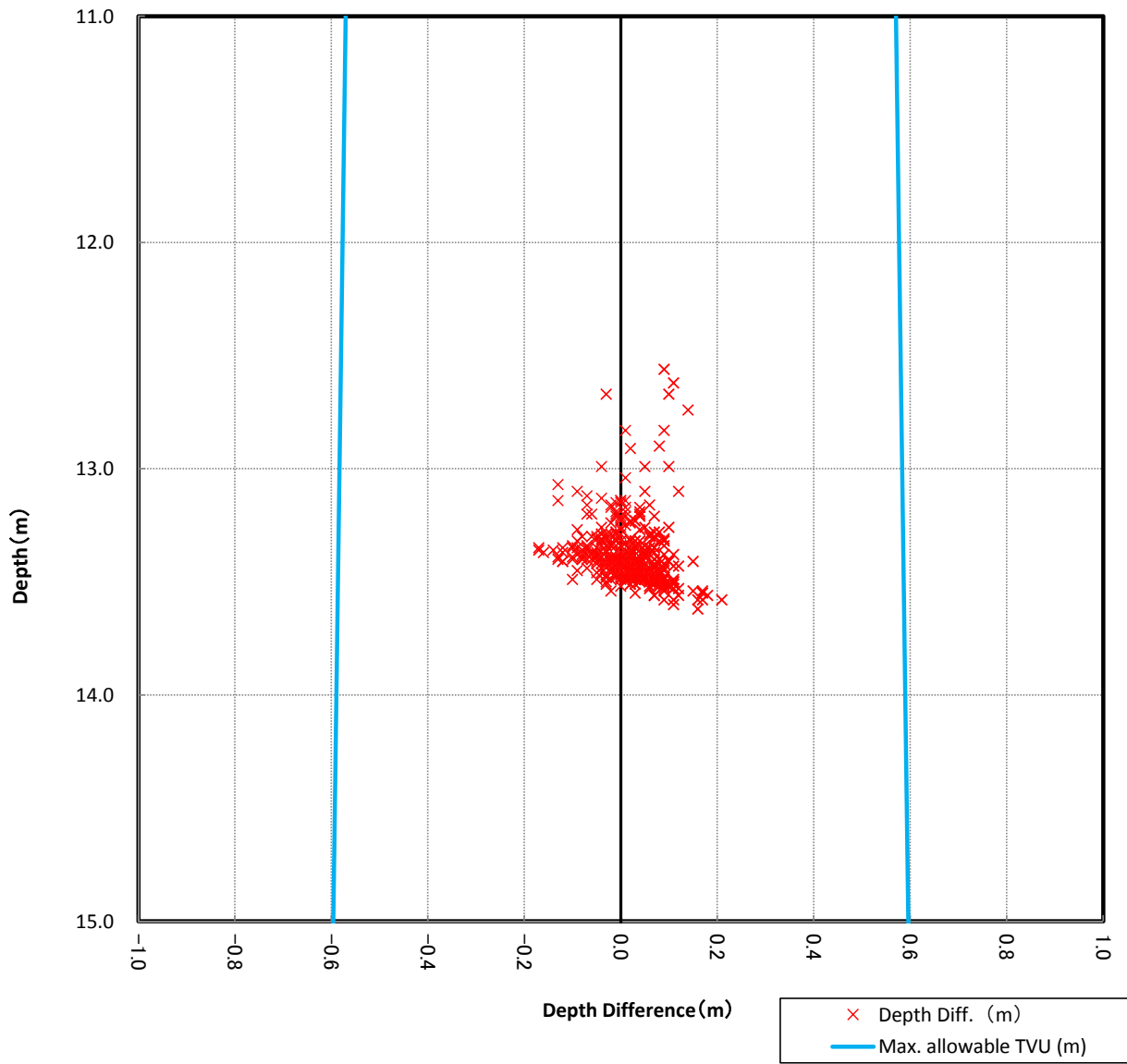
No.22

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_610\_0319  
 LAS1\_610\_0325  
 Number of data 396

Number of valid data: 396  
 Number of invalid data: 0  
 Mean Difference: 0.02 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

610\_0319 - 610\_0325





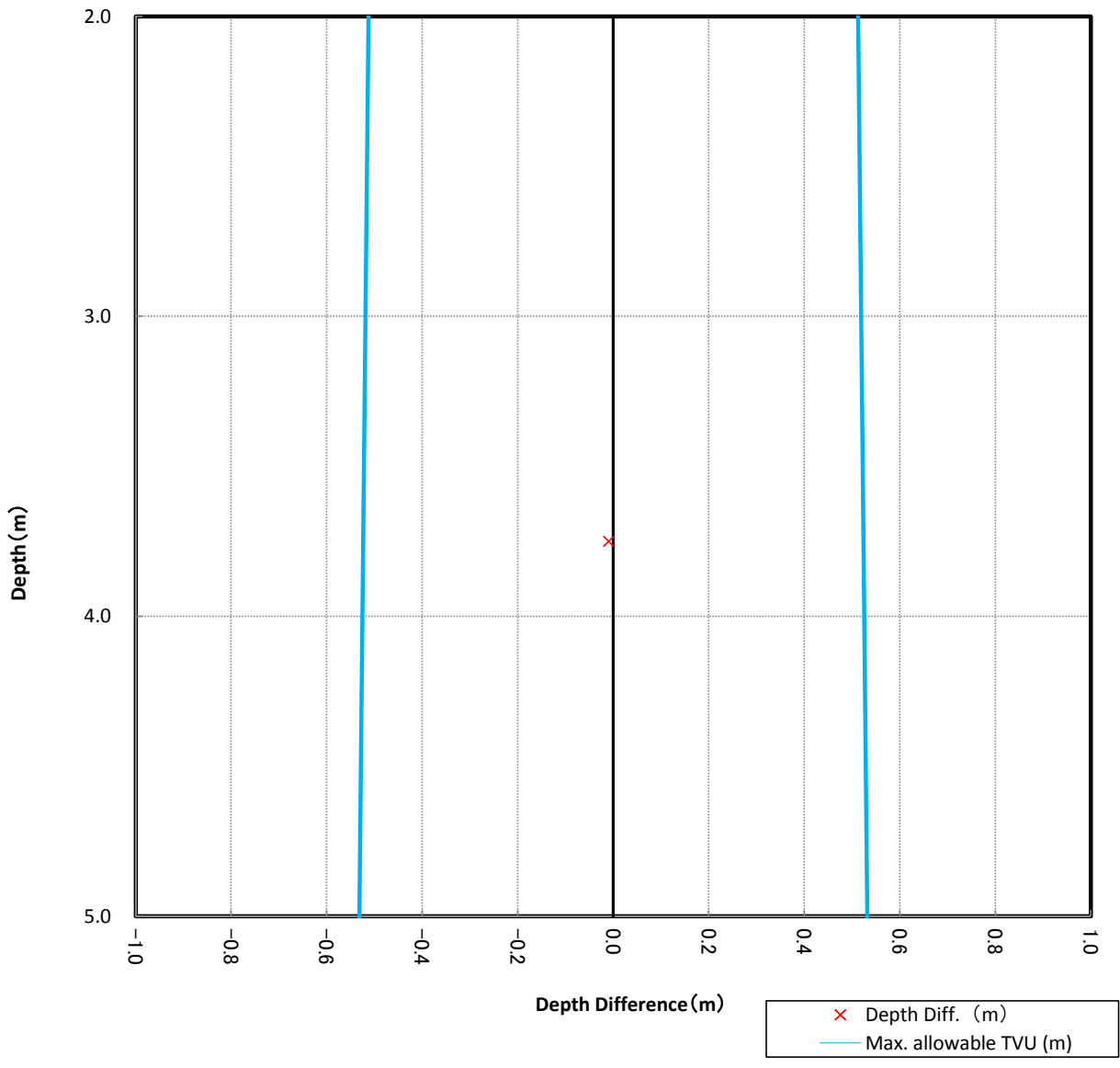
Multi-beam Echosounder Adjacent Inspection

No.23

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS1\_645\_SB0310  
 LAS1\_645\_SB0422  
 Number of data 1

Number of valid data: 1  
 Number of invalid data: 0  
 Mean Difference: -0.01 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 645\_SB0310 - 645\_SB0422**



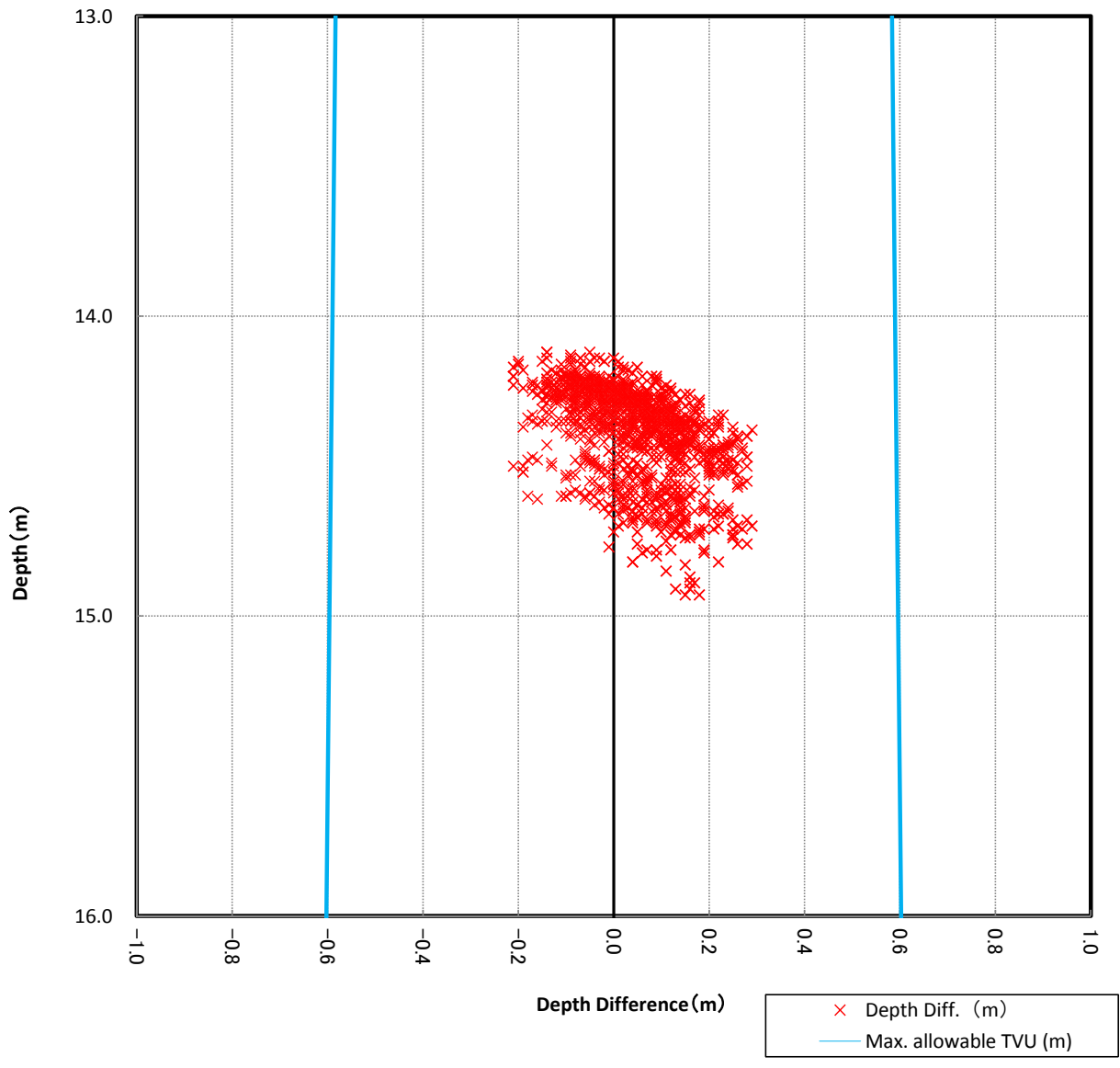
Multi-beam Echosounder Data Inspection

No.24

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_651\_0205  
 LAS1\_651\_0404  
 Number of data 1,182

Number of valid data: 1,182  
 Number of invalid data: 0  
 Mean Difference: 0.04 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 651\_0205 - 651\_0404**



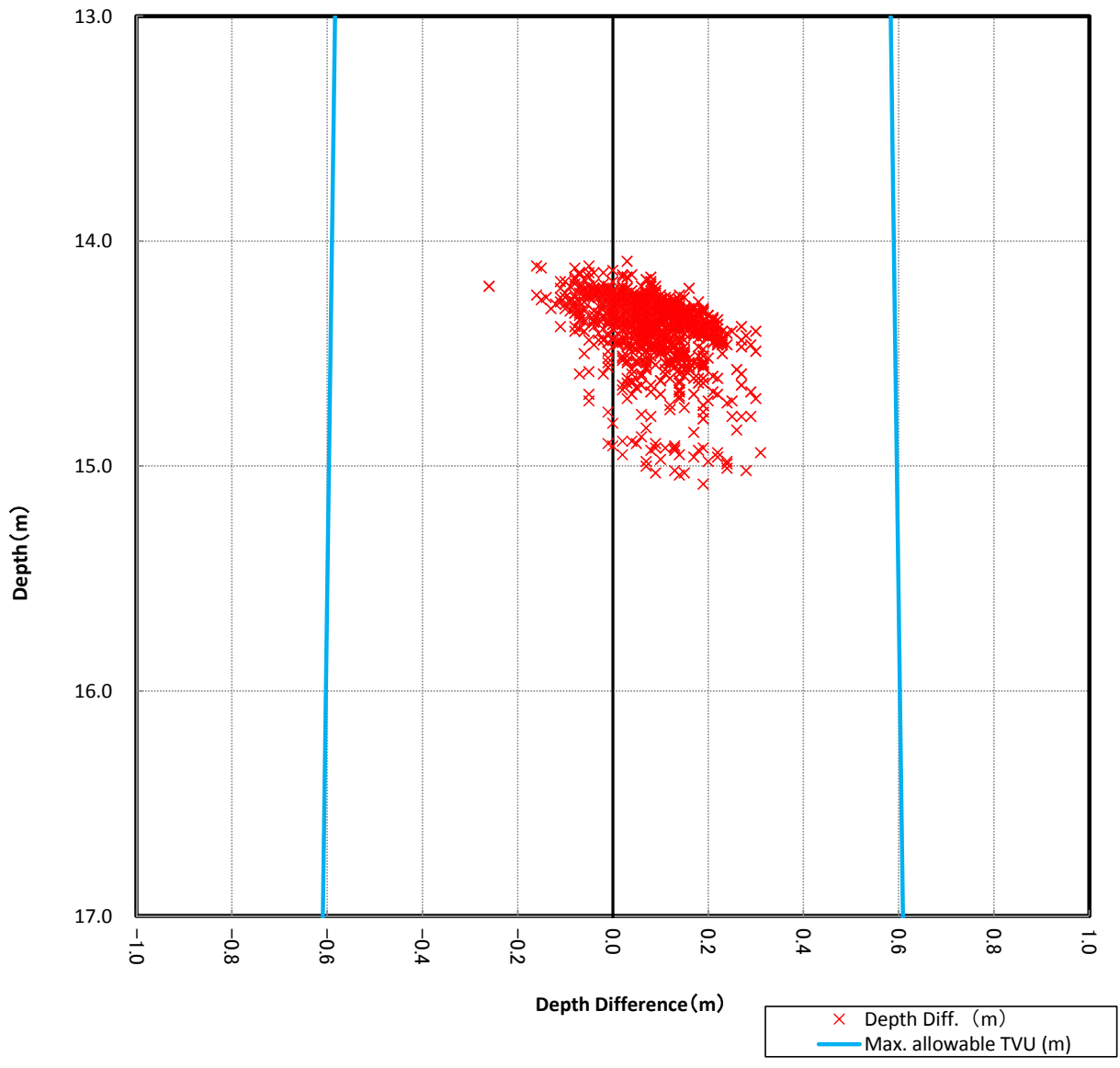
Multi-beam Echosounder Adjacent Inspection

No.25

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_651\_0319  
 LAS1\_651\_0404  
 Number of data 890

Number of valid data: 890  
 Number of invalid data: 0  
 Mean Difference: 0.08 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 651\_0319 - 651\_0404**



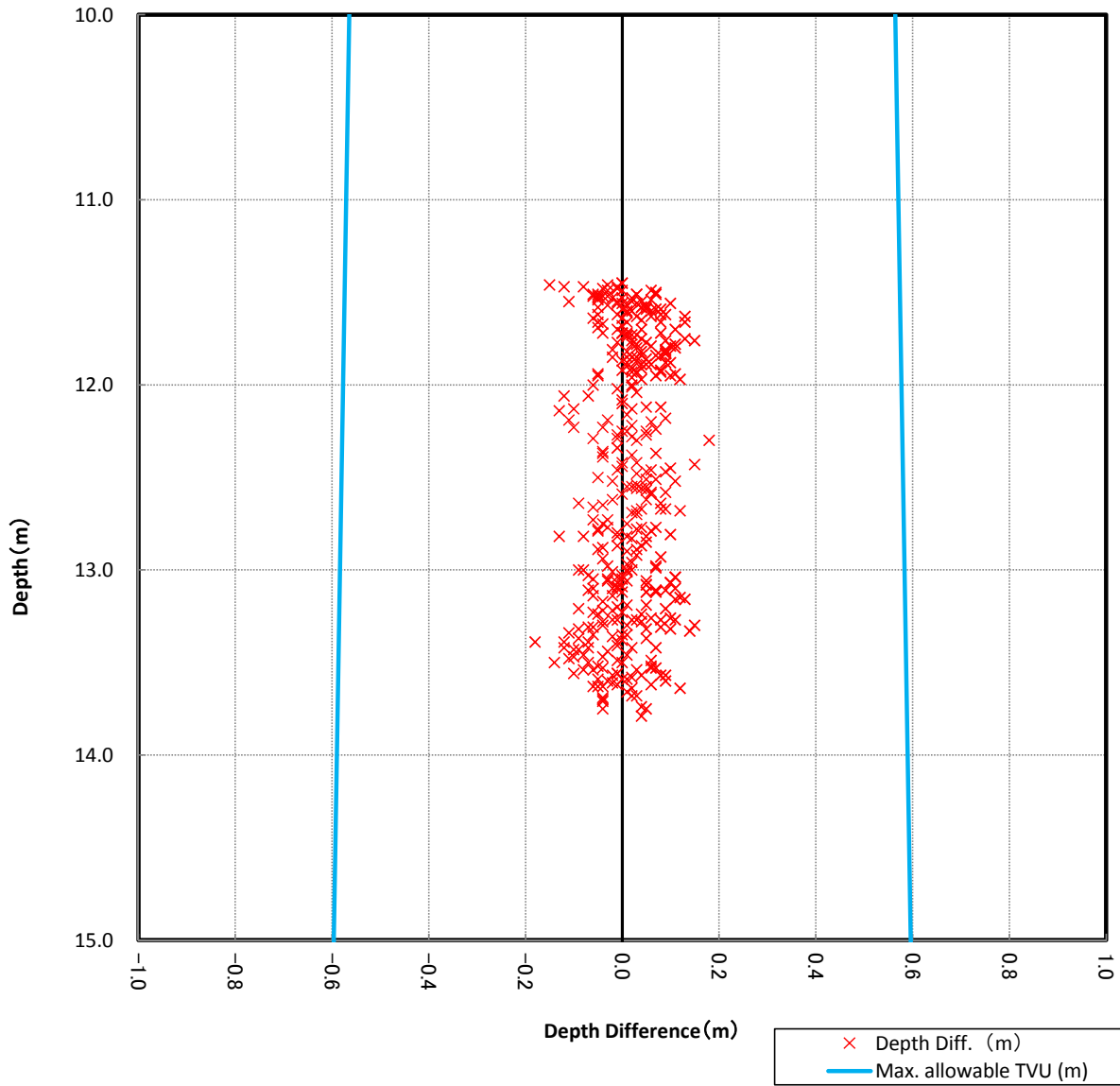
Multi-beam Echosounder Adjacent Inspection

No.26

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_720\_0204  
 LAS1\_720\_0401  
 Number of data 390

Number of valid data: 390  
 Number of invalid data: 0  
 Mean Difference: 0.01 m  
 Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 720\_0204 - 720\_0401**



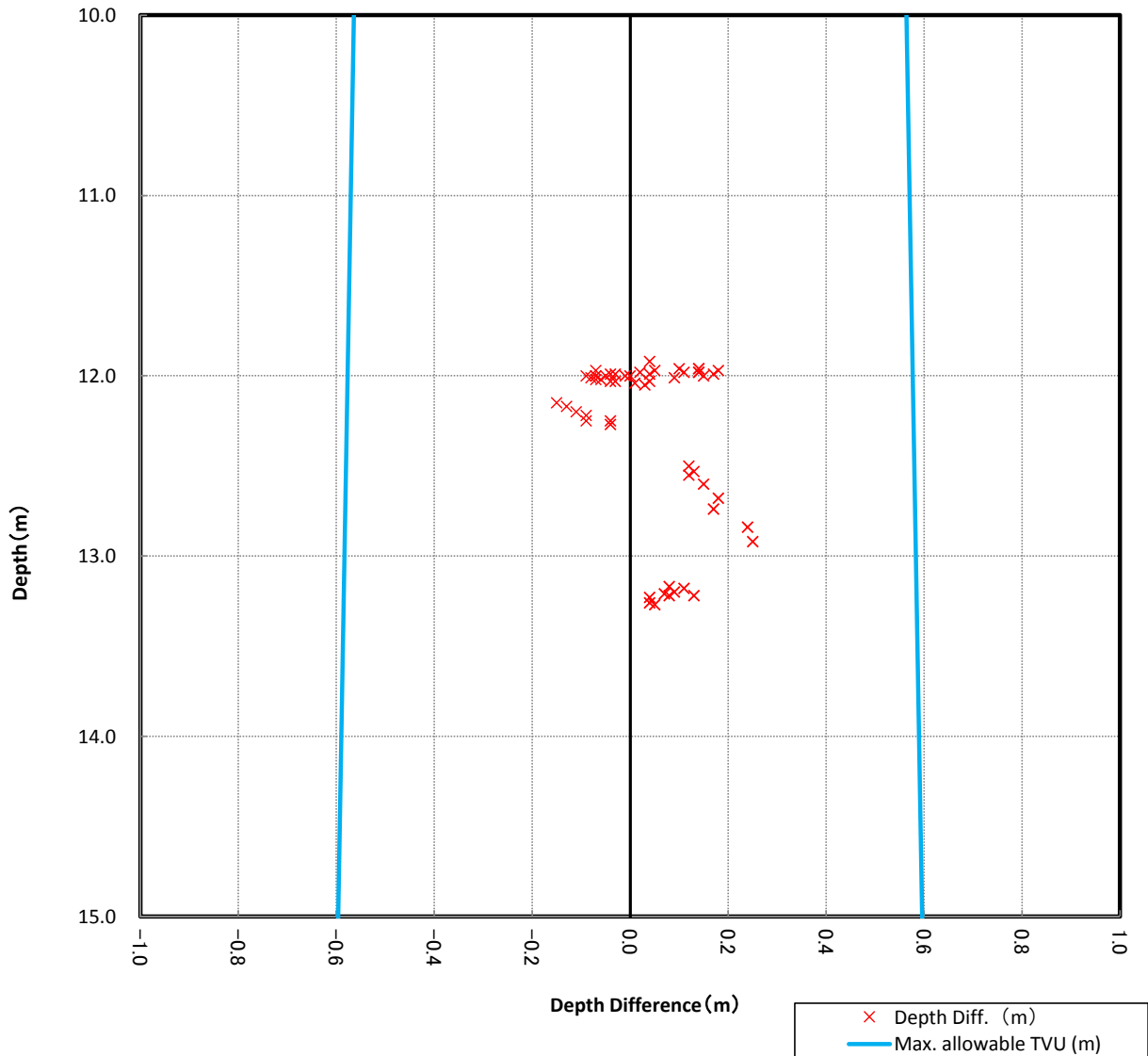
Multi-beam Echosounder Adjacent Inspection

No.27

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_720\_0320  
 LAS1\_720\_0403  
 Number of data 55

Number of valid data: 55  
 Number of invalid data: 0  
 Mean Difference: 0.04 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 720\_0320 - 720\_0403**



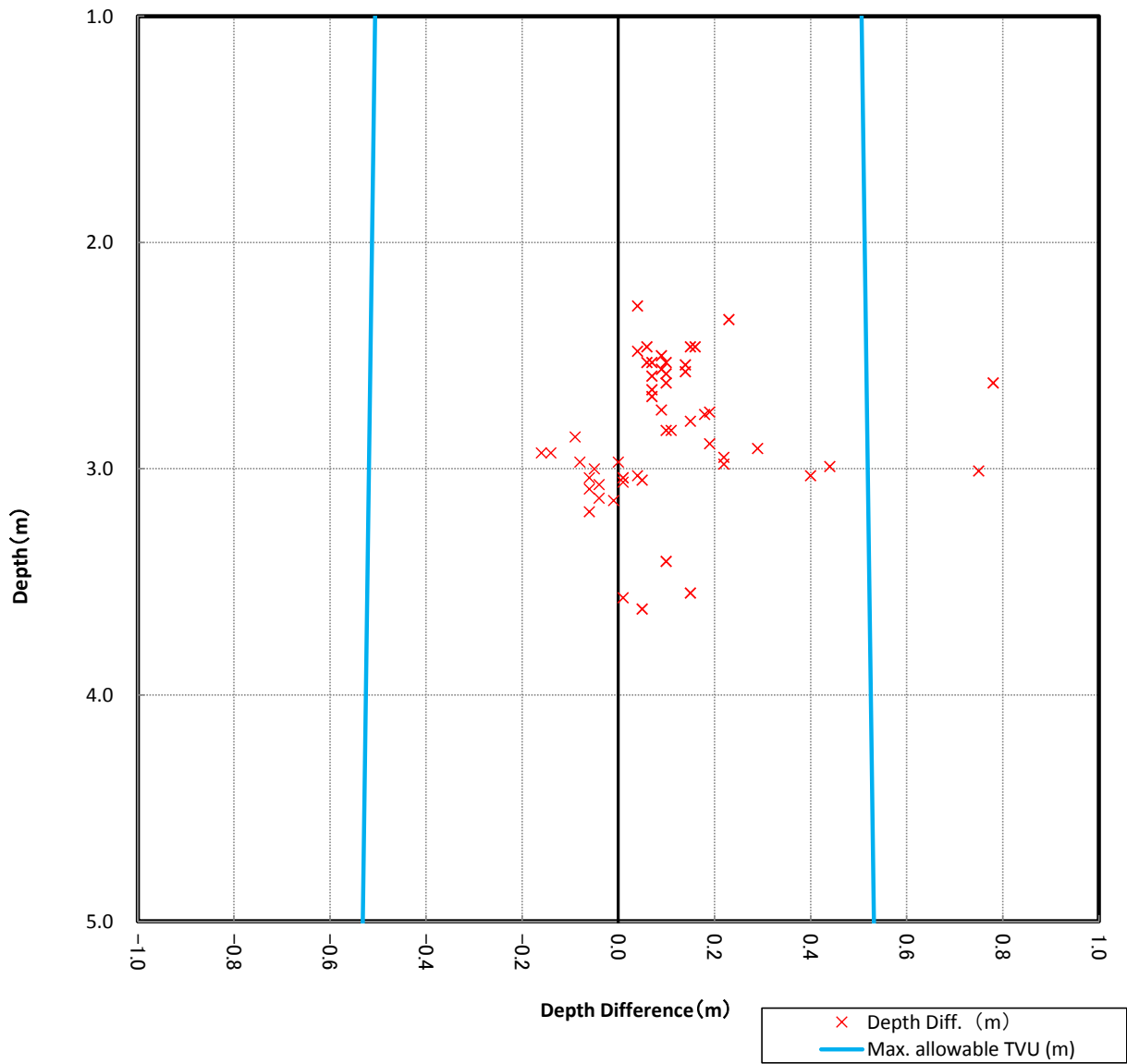
Multi-beam Echosounder Adjacent Inspection

No.28

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS1\_778\_0215  
 LAS1\_778\_SB0401  
 Number of data 53

Number of valid data: 51  
 Number of invalid data: 2  
 Mean Difference: 0.10 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 778\_0215 - 778\_SB0401**



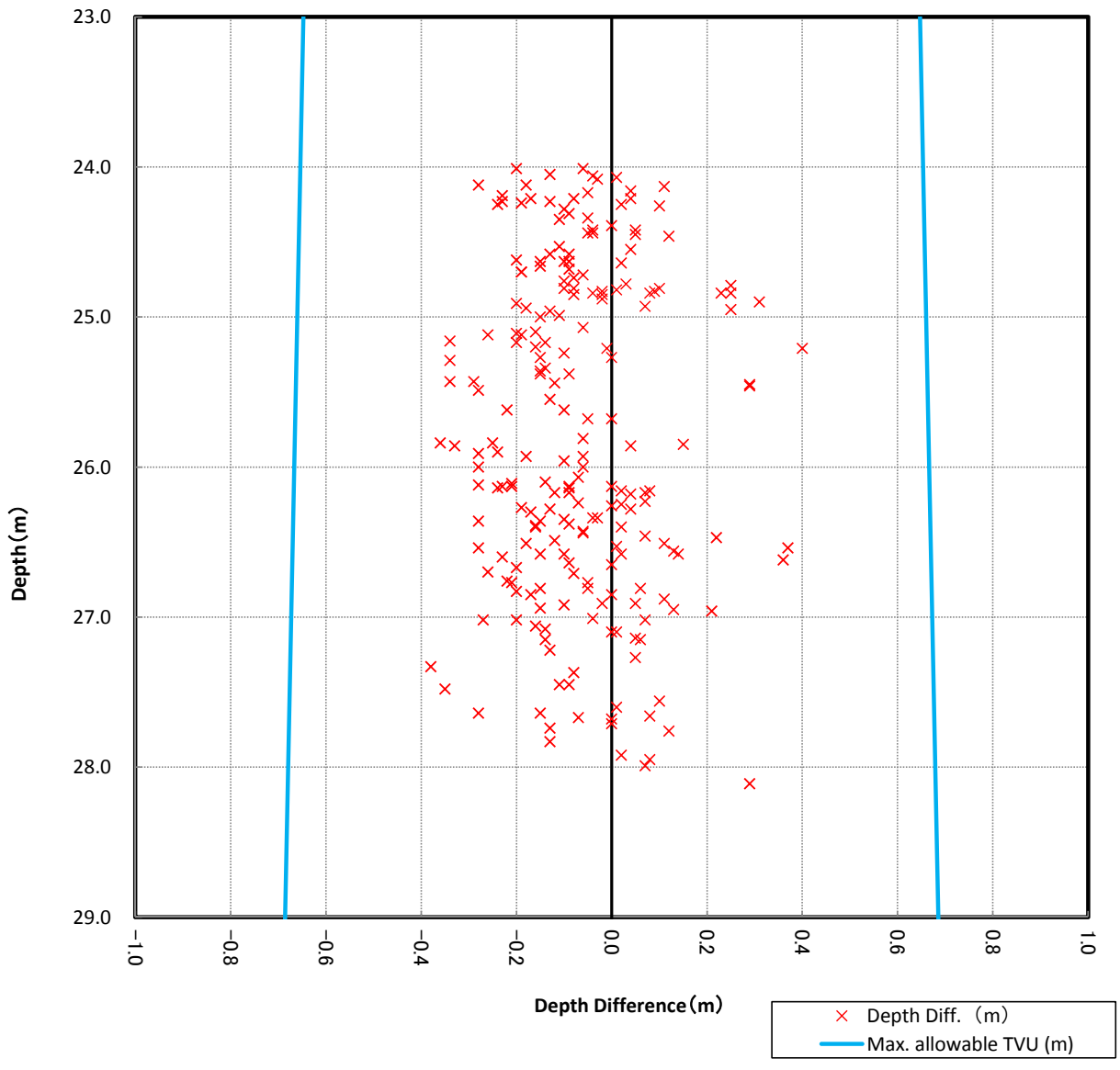
Multi-beam Echosounder Adjacent Inspection

No.29

Area : Sihanoukville harbour  
 Order : 1a  
 Survey Line : LAS1\_817\_0203  
 LAS1\_817\_0328  
 Number of data 218

Number of valid data : 218  
 Number of invalid data : 0  
 Mean Difference : -0.07 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 817\_0203 - 817\_0328**



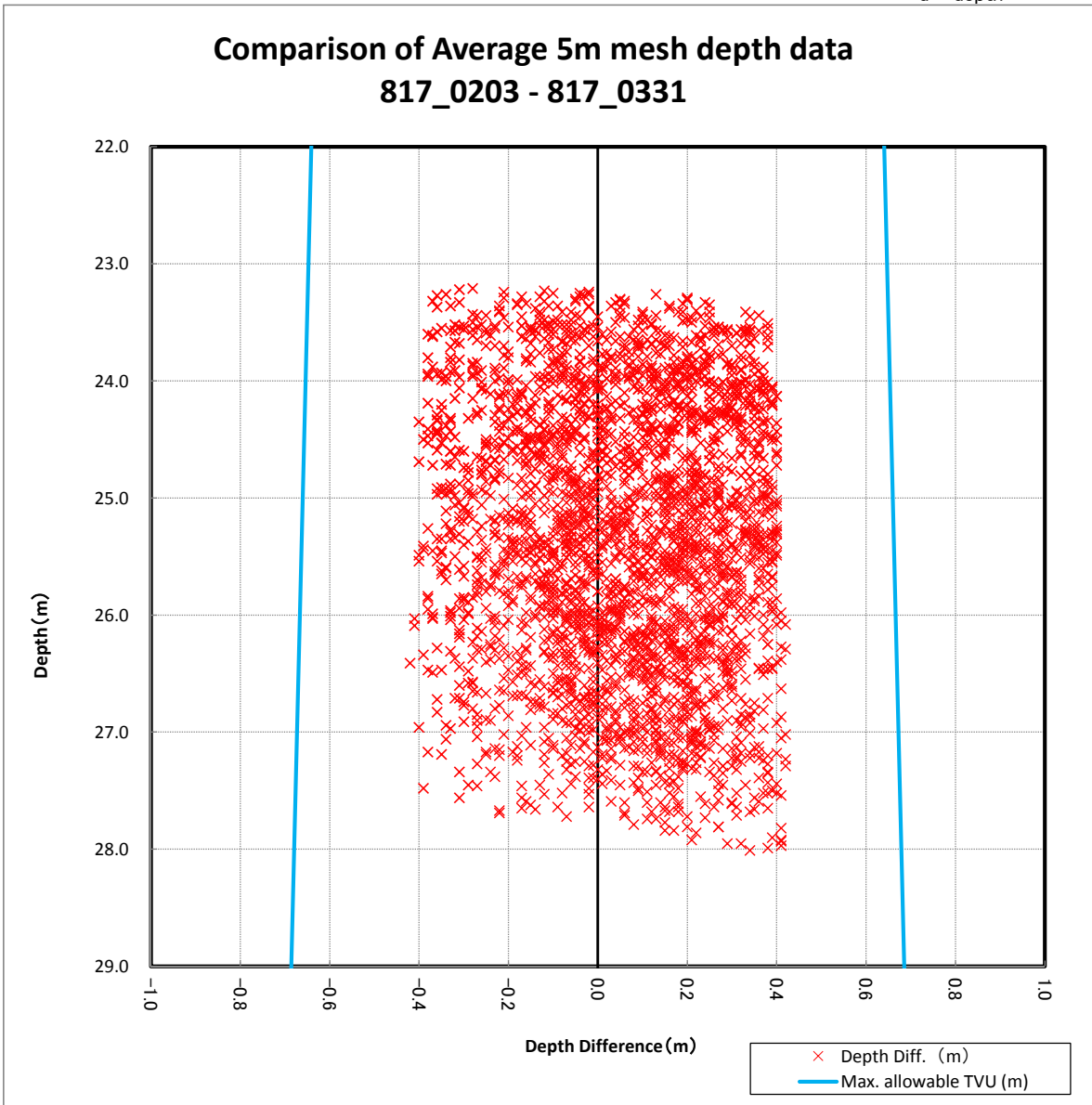


Multi-beam Echosounder Adjacent Inspection

No.30

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_817\_0203  
 LAS1\_817\_0331  
 Number of data 3006

Number of valid data: 3006  
 Number of invalid data: 0  
 Mean Difference: 0.06 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



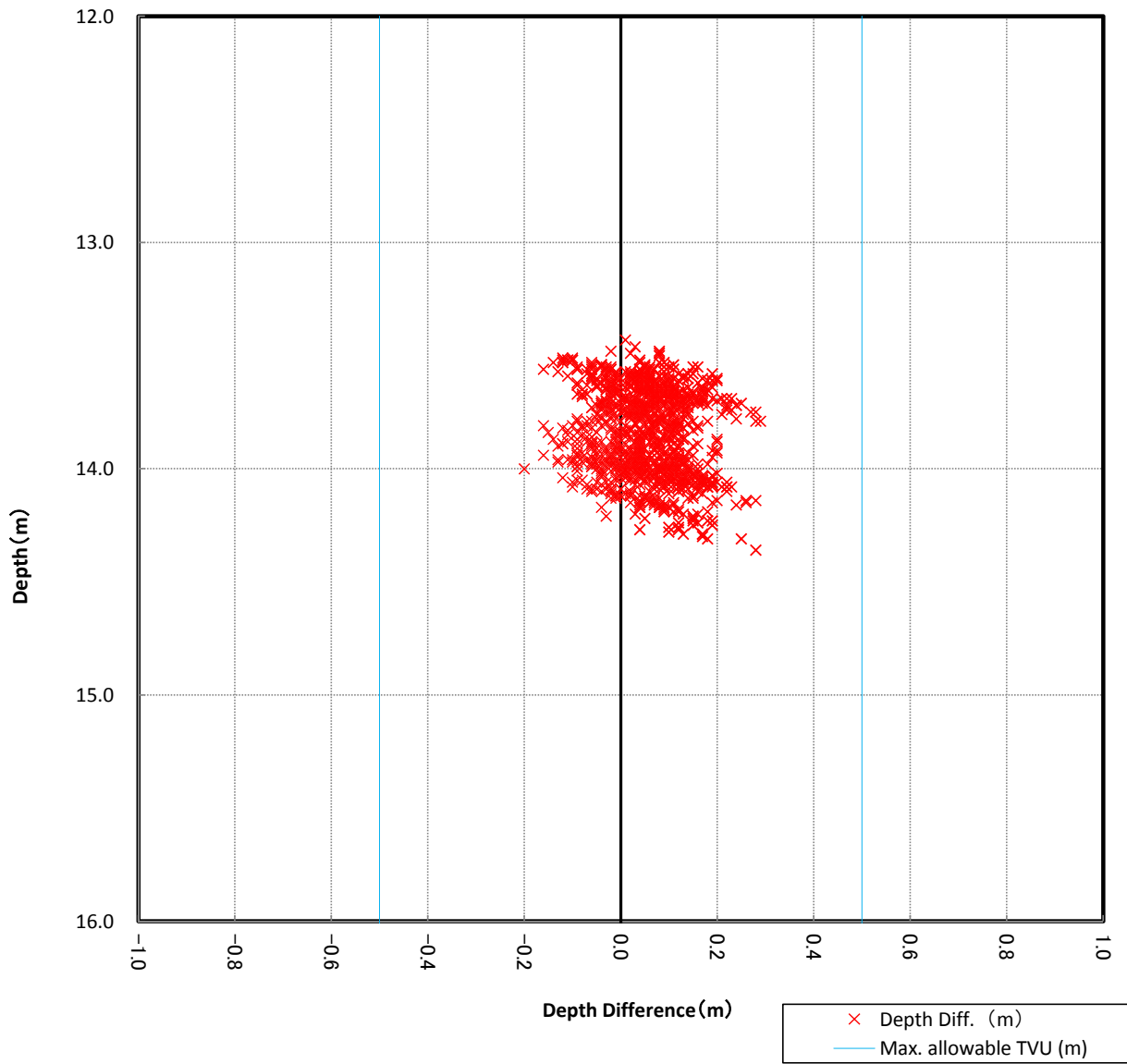
Multi-beam Echosounder Adjacent Inspection

No.31

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_833\_0317  
 LAS1\_833\_0329  
 Number of data 1,029

Number of valid data: 1,029  
 Number of invalid data: 0  
 Mean Difference: 0.05 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 833\_0317 - 833\_0329**



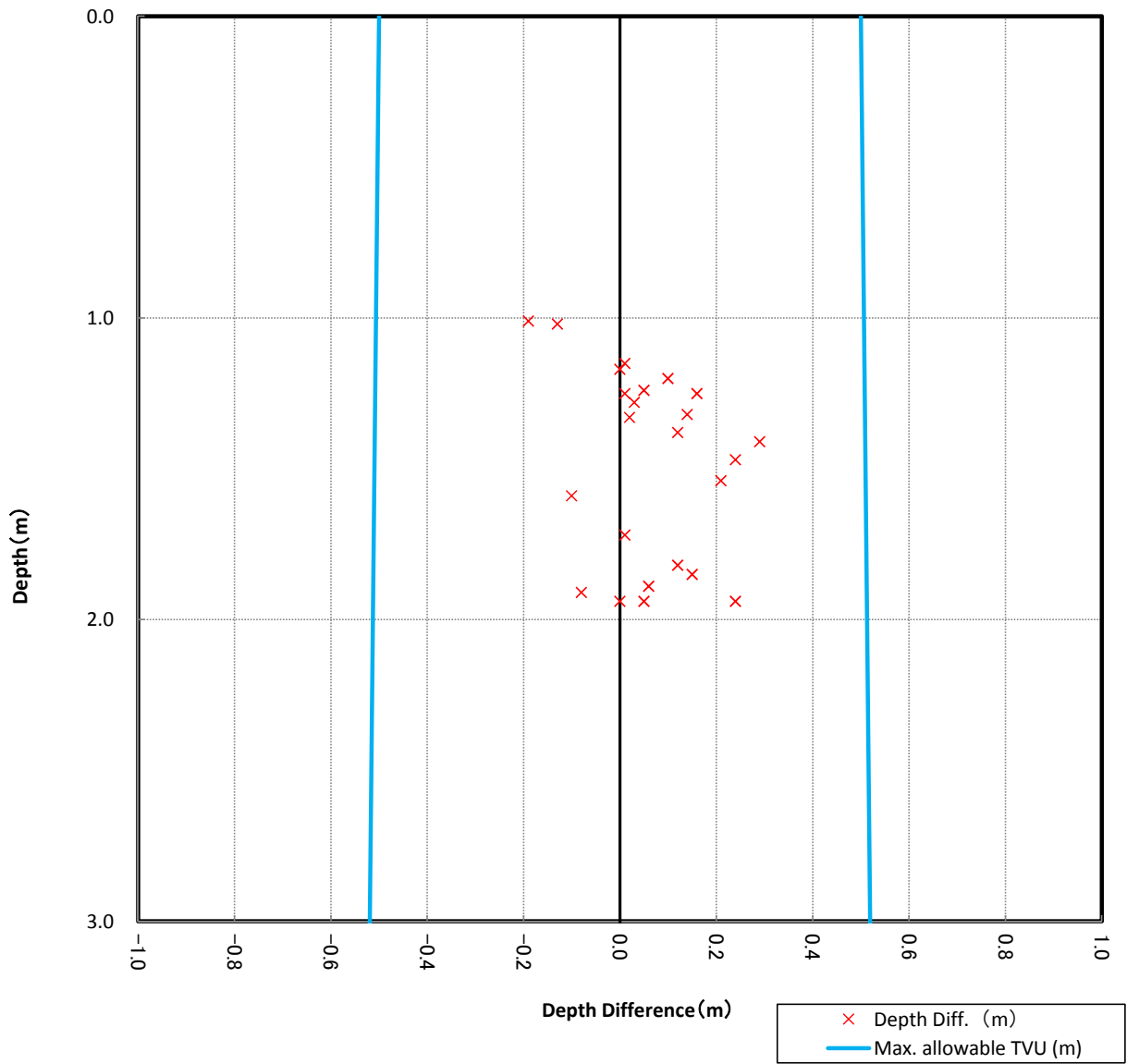
Multi-beam Echosounder Adjacent Inspection

No.32

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS1\_874\_SB0313  
 LAS1\_874\_SB0402  
 Number of data 24

Number of valid data: 24  
 Number of invalid data: 0  
 Mean Difference: 0.05 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 874\_SB0313 - 874\_SB0402**

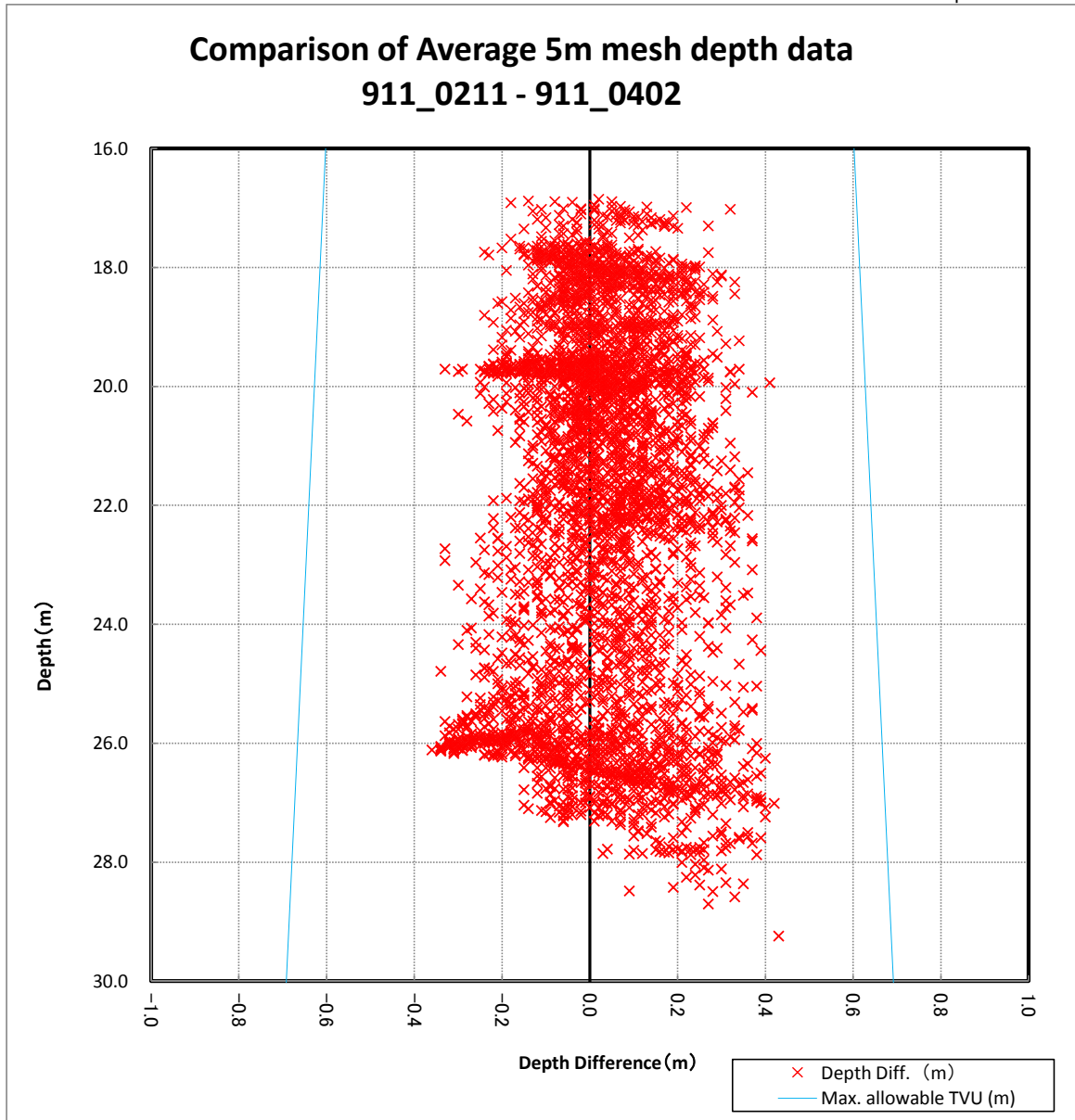


Multi-beam Echosounder Data Inspection

No.33

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_911\_0211  
 LAS1\_911\_0402  
 Number of data 3,631

Number of valid data: 3,631  
 Number of invalid data: 0  
 Mean Difference: 0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth



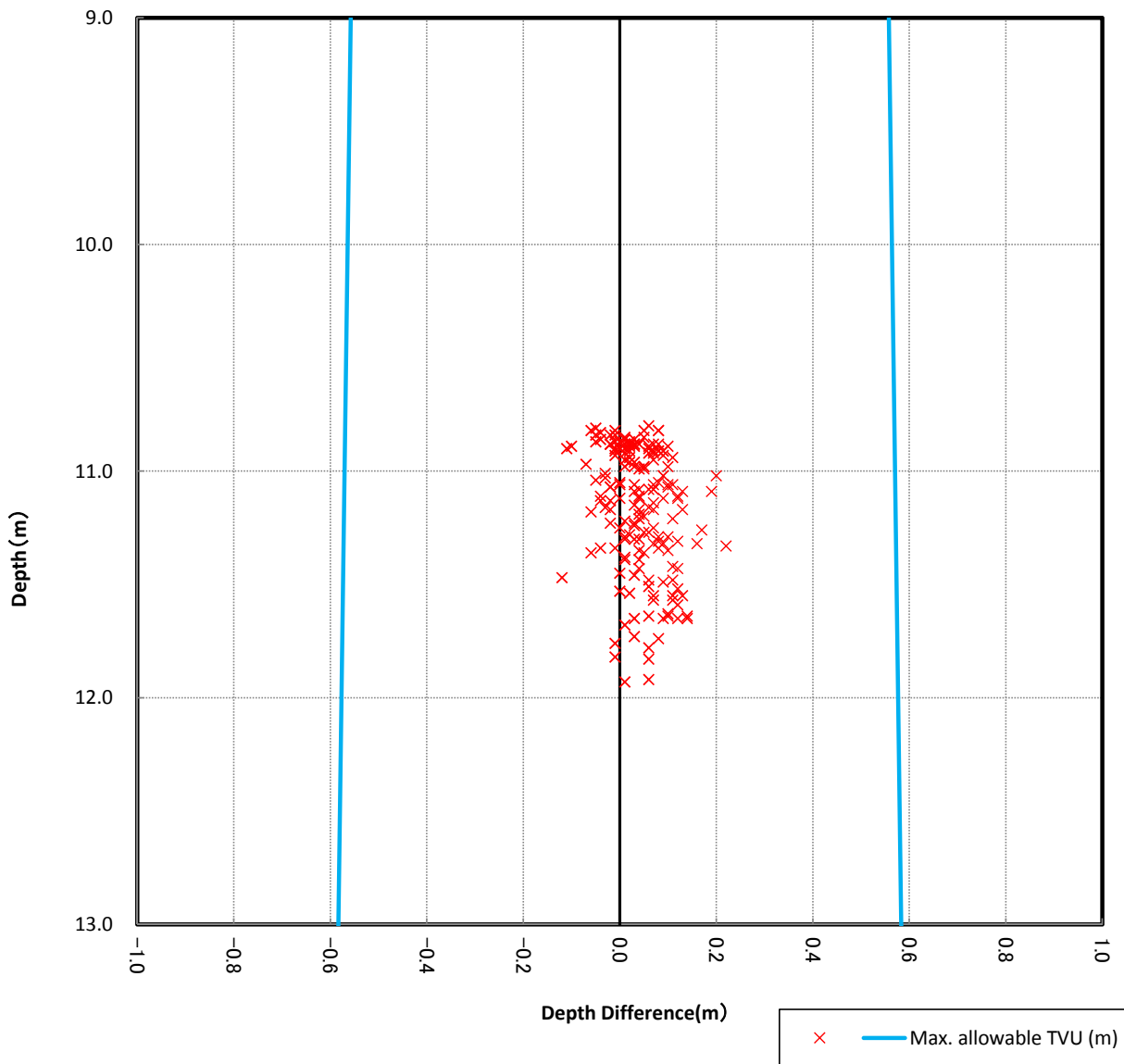
Multi-beam Echosounder Data Inspection

No34

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_958\_0221  
 LAS1\_958\_0407  
 Number of data 178

Number of valid data: 178  
 Number of invalid data: 0  
 Mean Difference: 0.04 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 958\_0221 - 958\_0407**

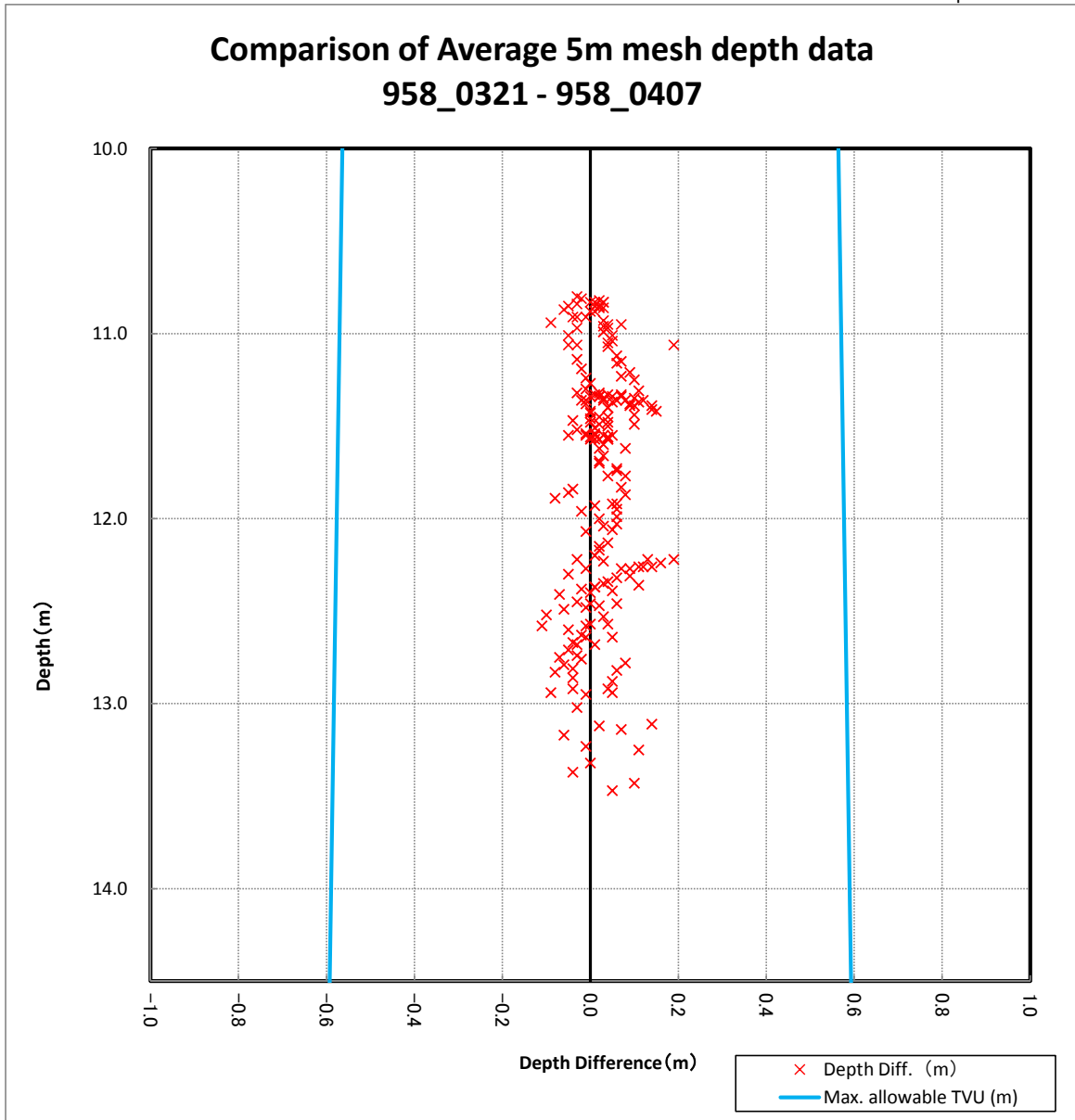


Multi-beam Echosounder Data Inspection

No.35

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_958\_0321  
 LAS1\_958\_0407  
 Number of data 207

Number of valid data: 207  
 Number of invalid data: 0  
 Mean Difference: 0.02 m  
 Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth



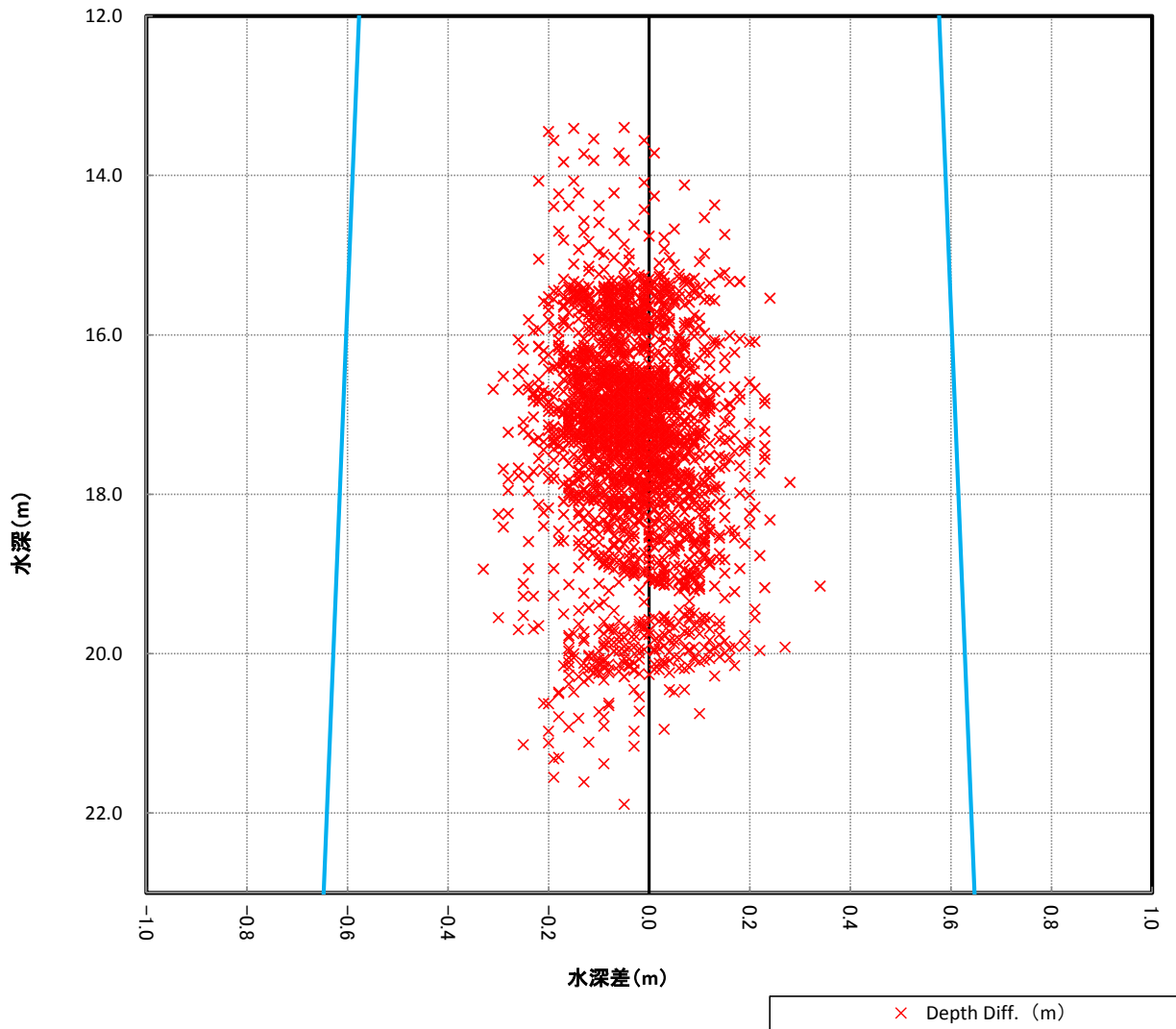
Multi-beam Echosounder Data Inspection

No.36

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_1008\_0326  
 LAS1\_1008\_0408  
 Number of data 2,428

Number of valid data: 2,428  
 Number of invalid data: 0  
 Mean Difference: -0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 1008\_0326 - 1008\_0408



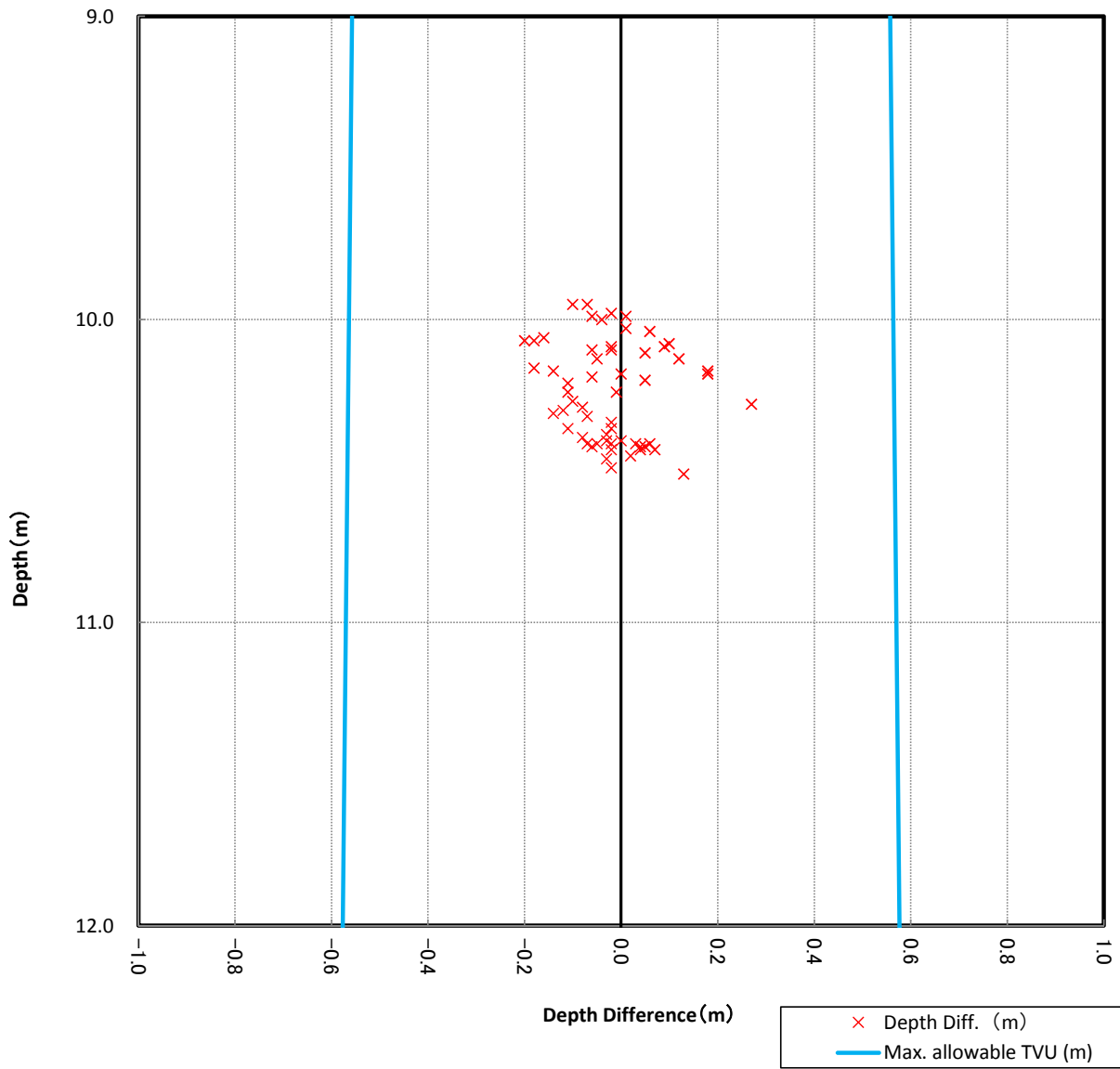
Multi-beam Echosounder Data Inspection

No.37

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_1064\_0221  
 LAS1\_1064\_0417  
 Number of data 57

Number of valid data: 57  
 Number of invalid data: 0  
 Mean Difference: -0.02 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 1064\_0221 - 1064\_0417





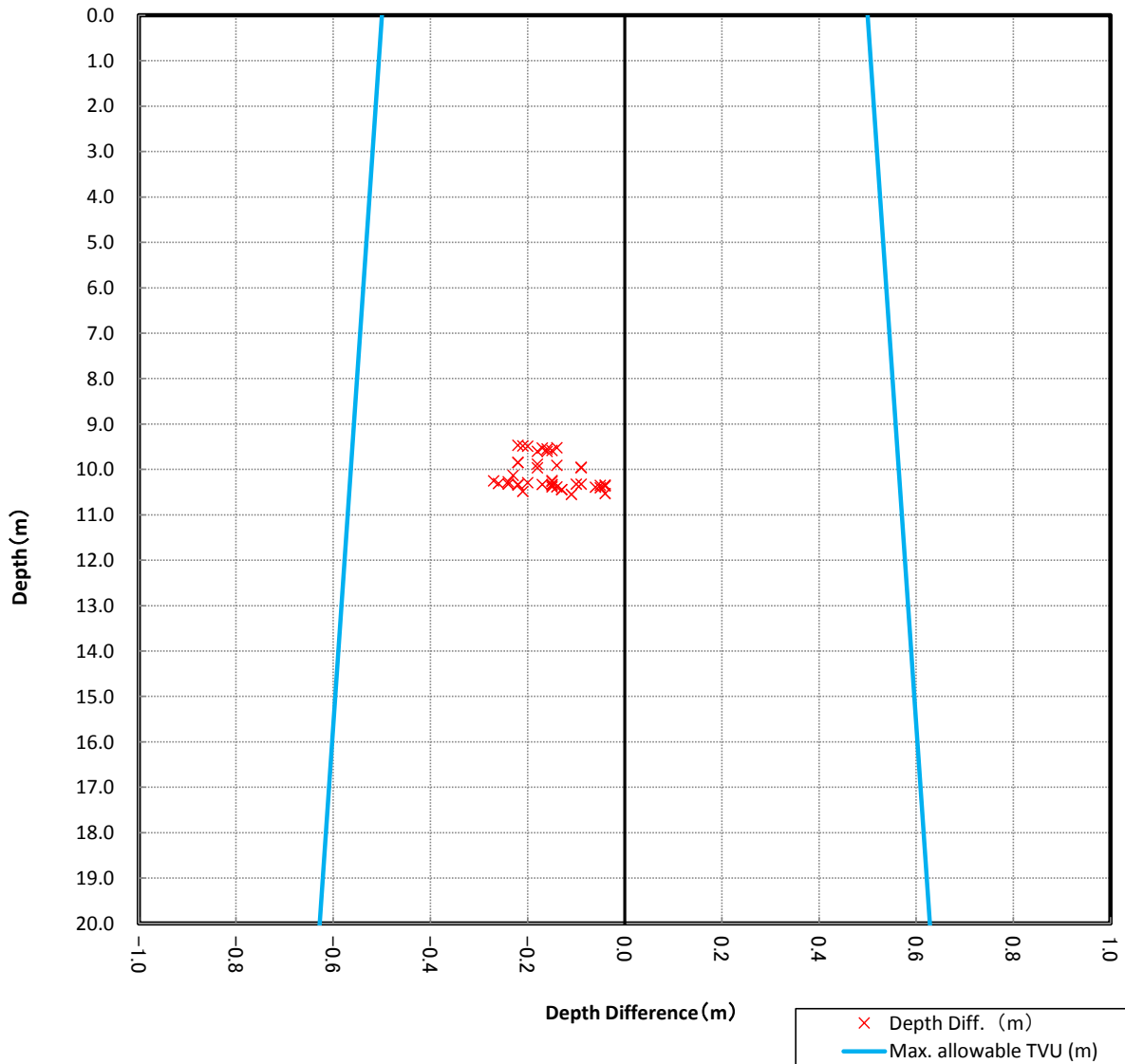
Multi-beam Echosounder Data Inspection

No.38

Area: Sihanoukville harbour  
 Order: 1a,1b  
 Survey Line: LAS1\_1064\_0221  
 LAS1\_1064\_0418  
 Number of data 43

Number of valid data: 43  
 Number of invalid data: 0  
 Mean Difference: -0.15 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 1064\_0221 - 1064\_0418**



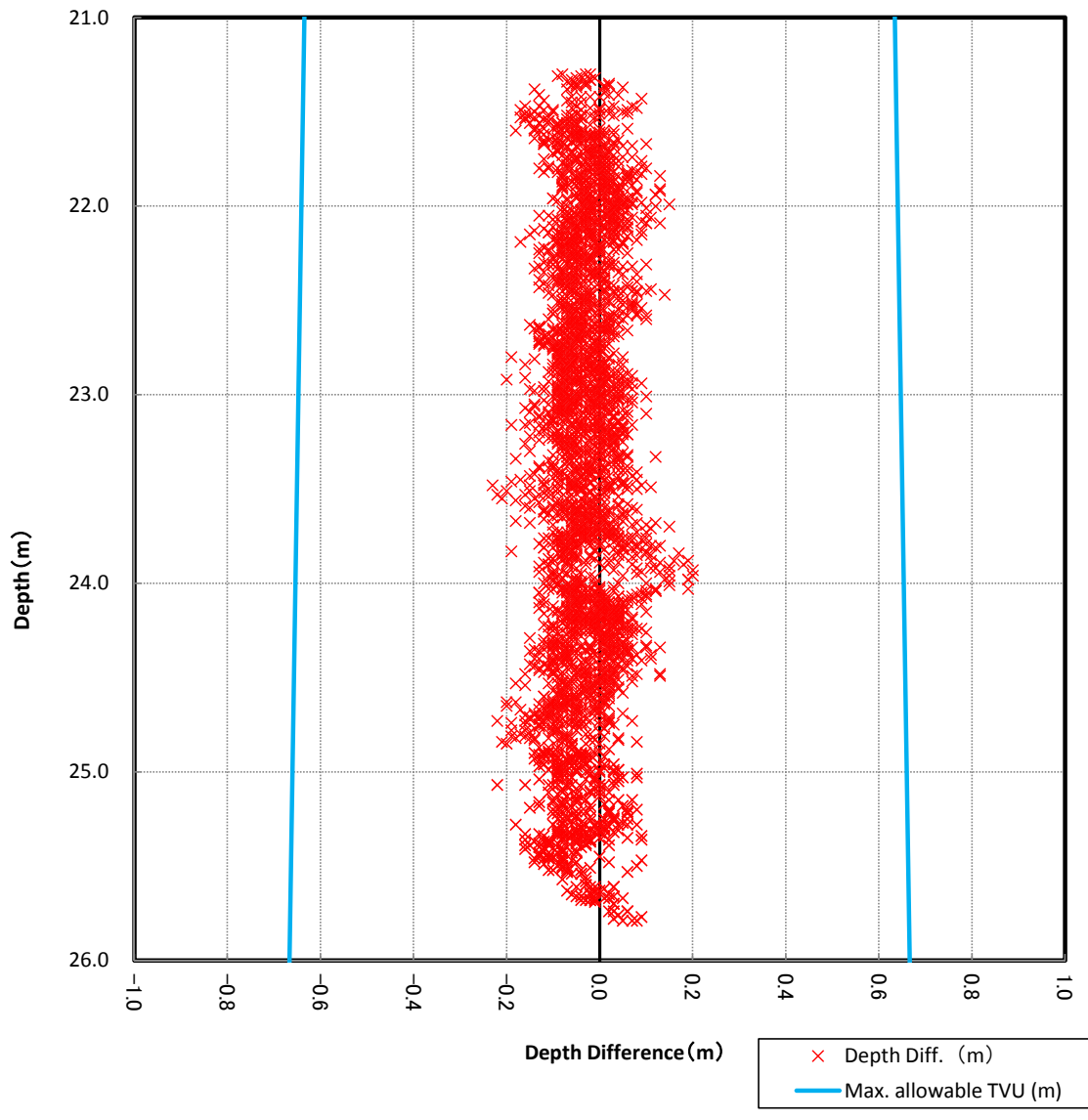
Multi-beam Echosounder Data Inspection

No.39

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_1122\_0304  
 LAS1\_1122\_0411  
 Number of data 3,311

Number of valid data: 3,311  
 Number of invalid data: 0  
 a -0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 1122\_0304 - 1122\_0411**



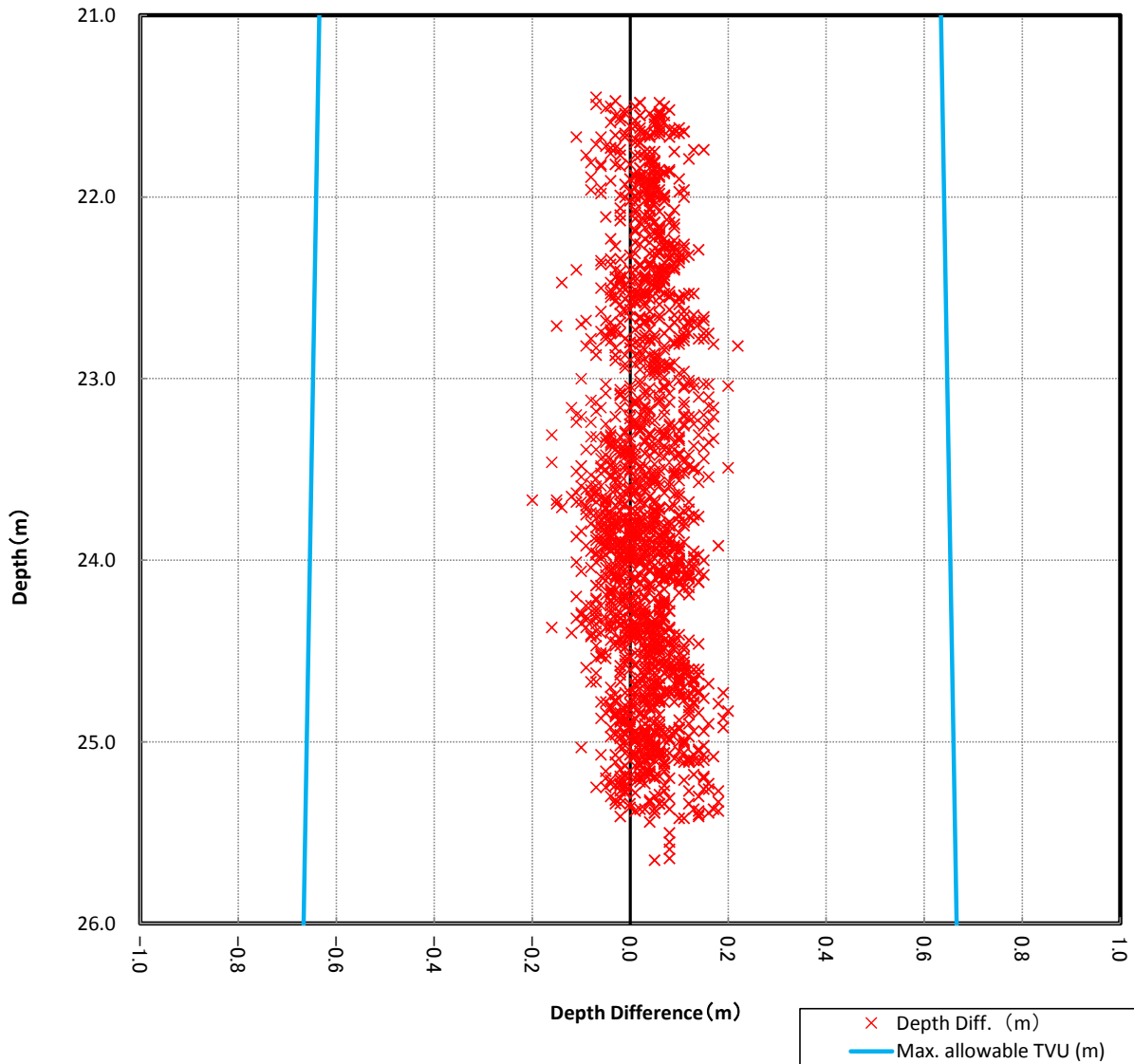
Multi-beam Echosounder Data Inspection

No.40

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_1122\_0327  
 LAS1\_1122\_0411  
 Number of data 1,794

Number of valid data: 1,794  
 Number of invalid data: 0  
 Mean Difference: 0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 1122\_0327 - 1122\_0411**



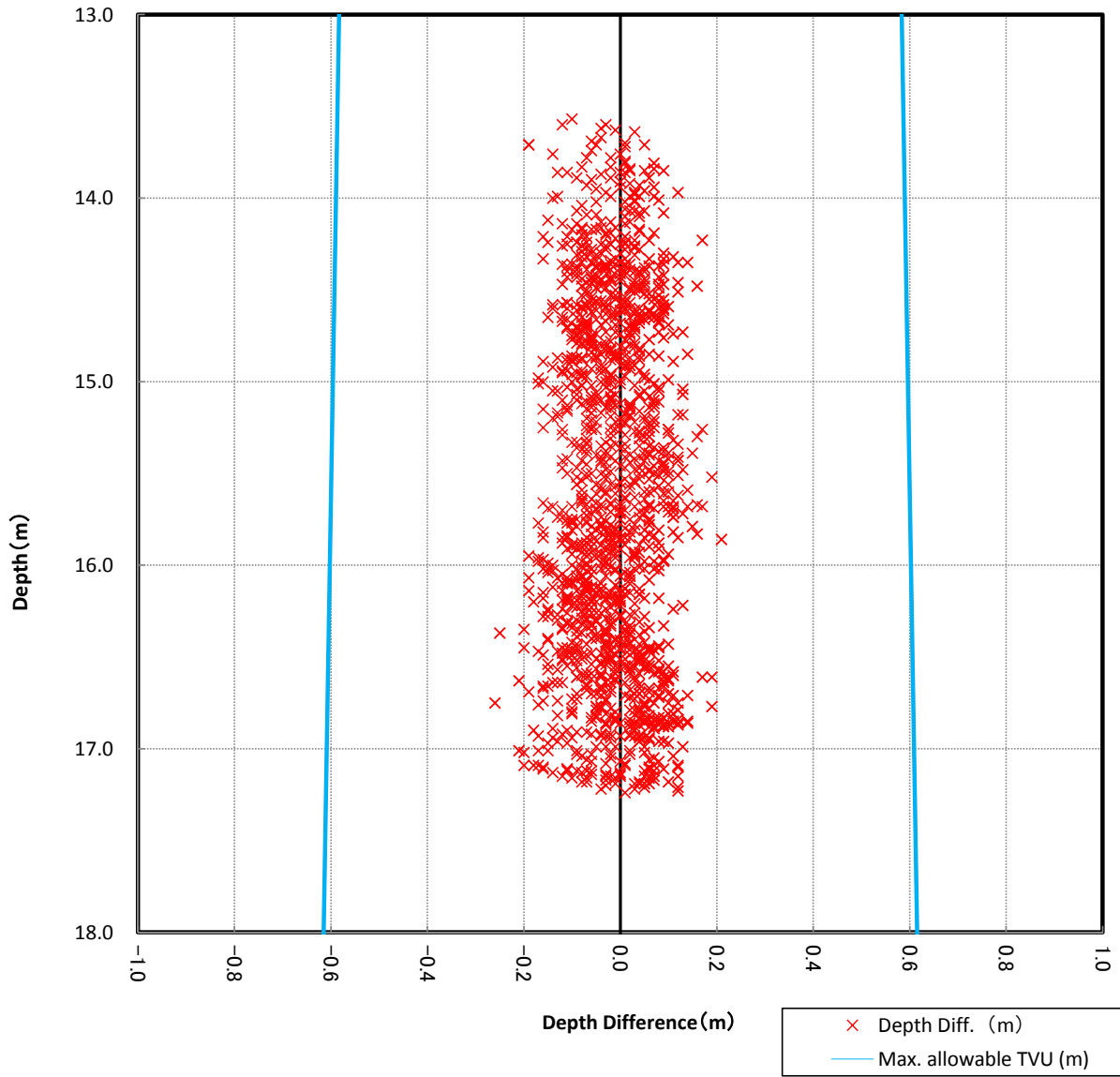
Multi-beam Echosounder Data Inspection

No.41

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_1140\_0225  
 LAS1\_1140\_0411  
 Number of data 1,457

Number of valid data: 1,457  
 Number of invalid data: 0  
 Mean Difference: -0.02 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 1140\_0225 - 1140\_0411**



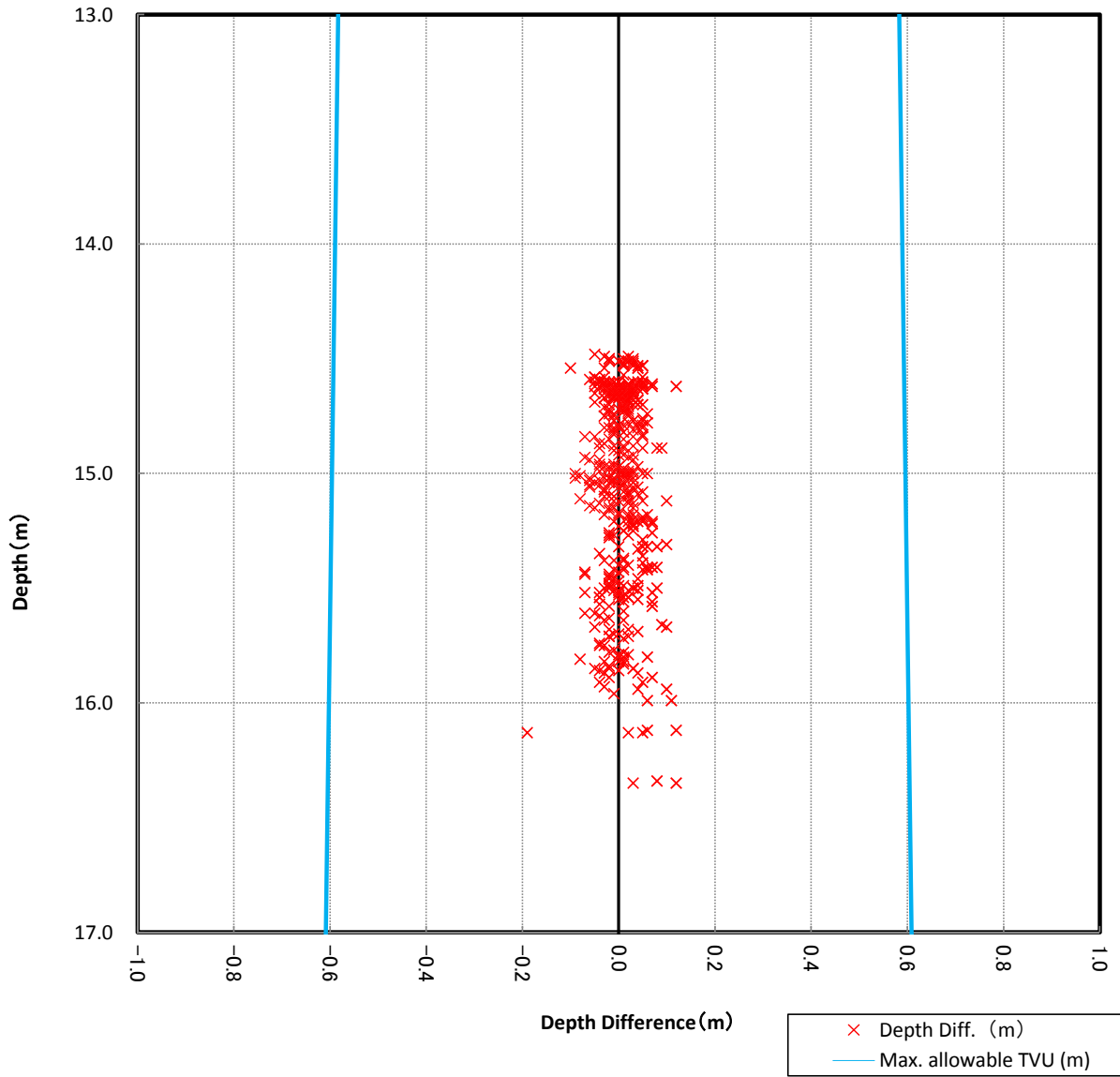
Multi-beam Echosounder Data Inspection

No.42

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_1198\_0327  
 LAS1\_1198\_0410  
 Number of data 458

Number of valid data: 458  
 Number of invalid data: 0  
 Mean Difference: 0.01 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 1198\_0327 - 1198\_0410**



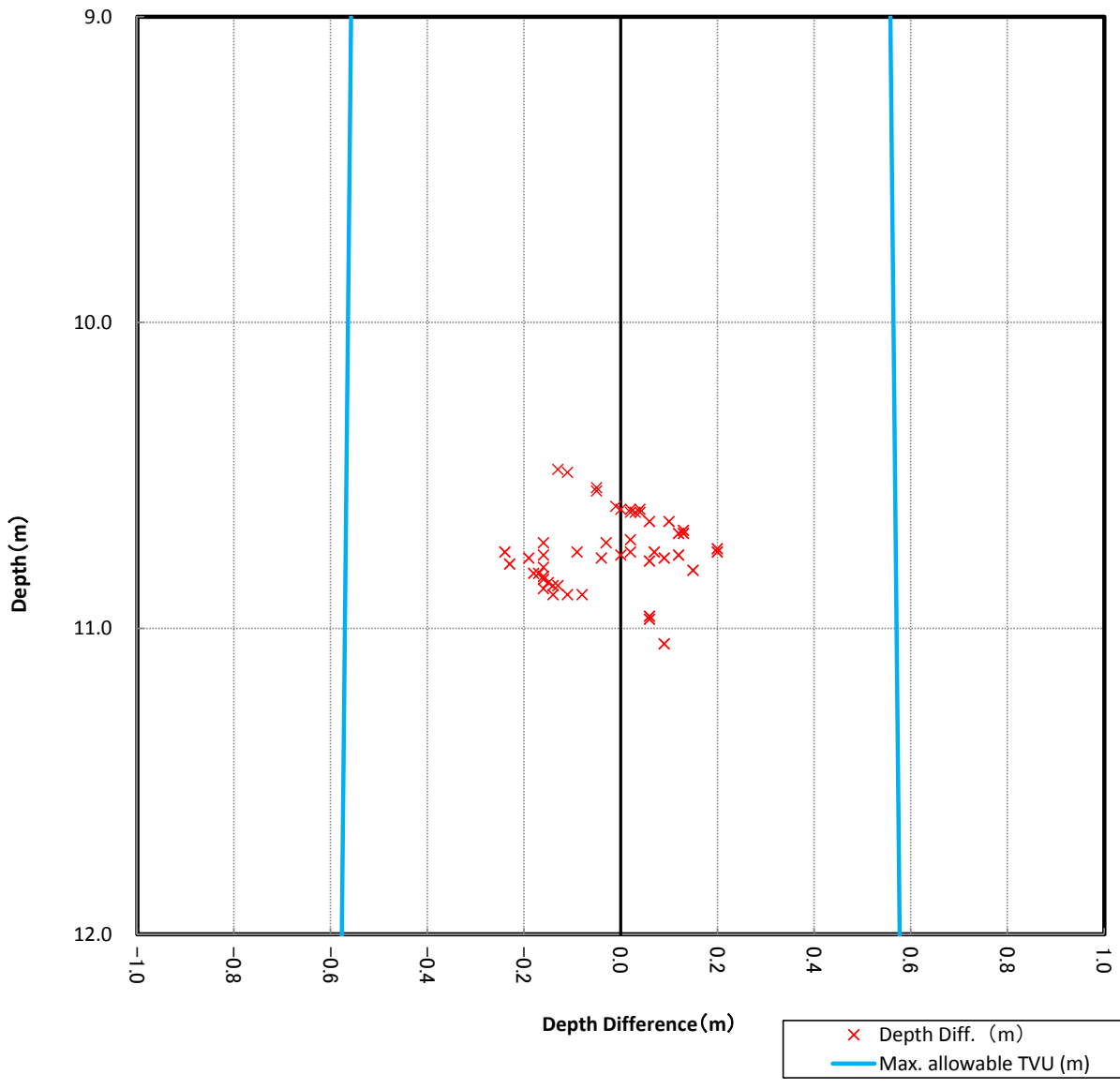
Multi-beam Echosounder Data Inspection

No.43

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS1\_1247\_0224  
 LAS1\_1247\_0409  
 Number of data 49

Number of valid data: 49  
 Number of invalid data: 0  
 Mean Difference: -0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 1247\_0224 - 1247\_0409**



Multi-beam Echosounder Data Inspection

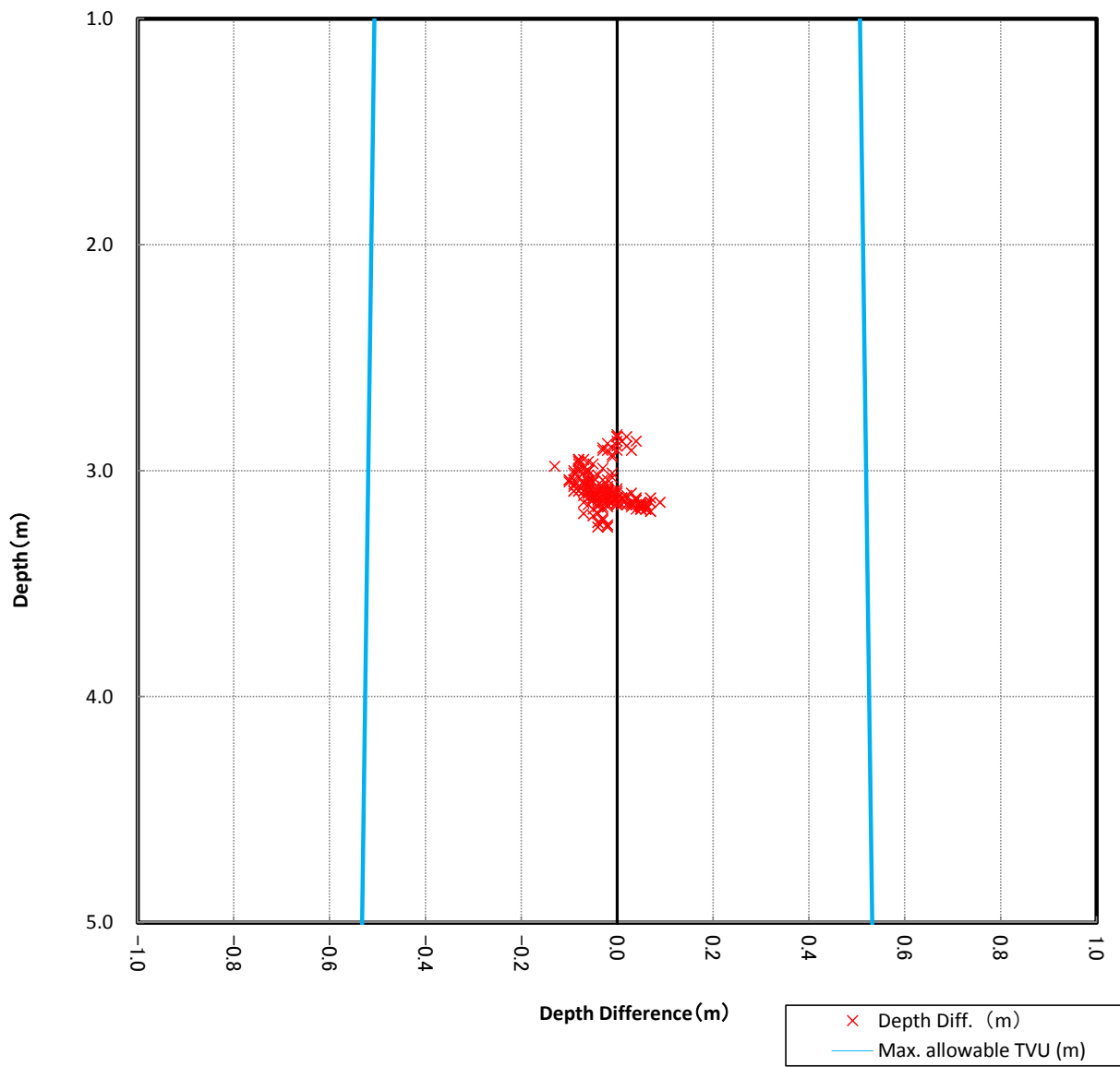
No.44

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS2\_261\_1125  
 LAS2\_261\_1205  
 Number of data 213

Number of valid data: 213  
 Number of invalid data: 0  
 Mean Difference: -0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

261\_1125 - 261\_1205



Multi-beam Echosounder Data Inspection

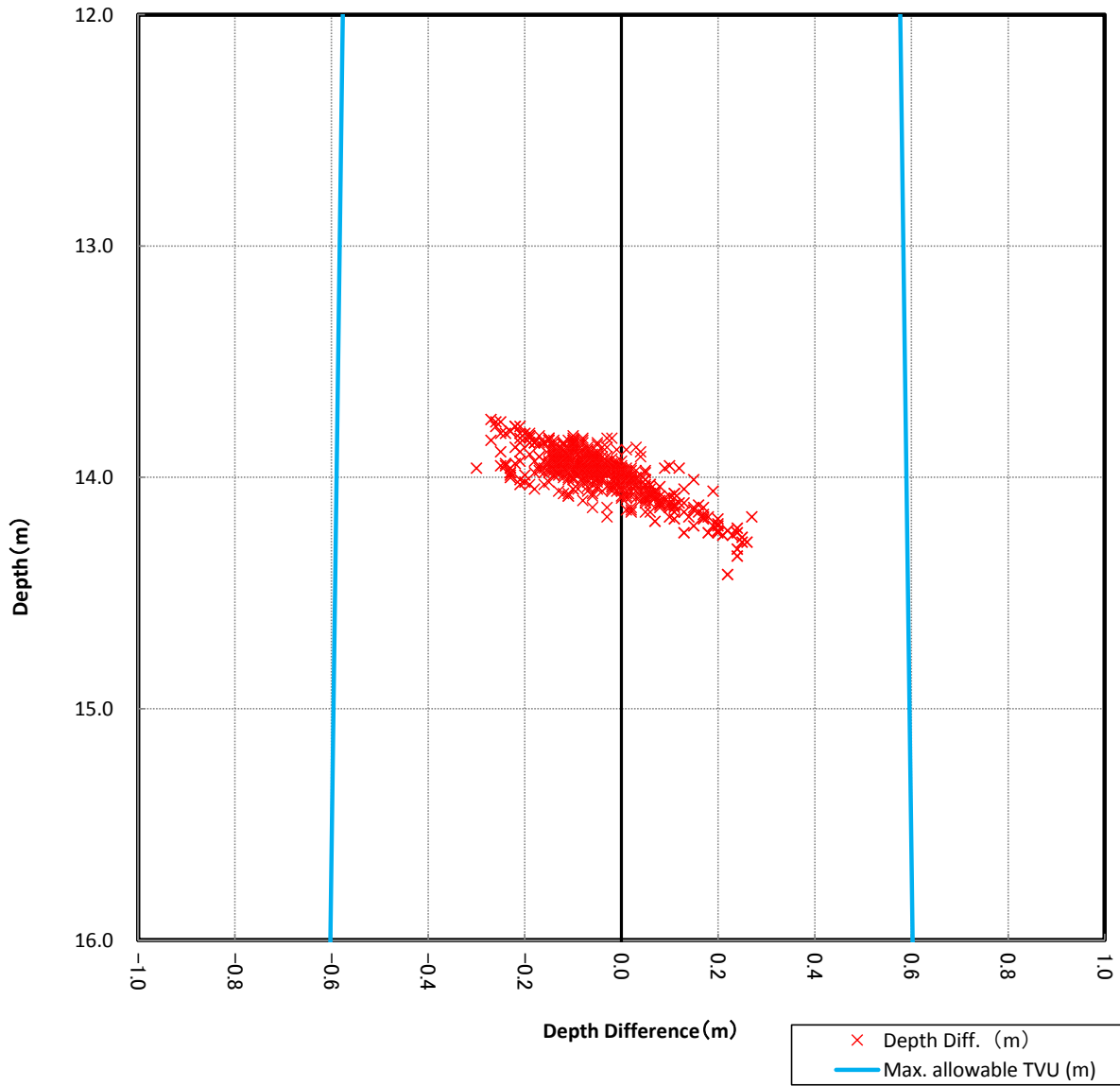
No.45

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS2\_370\_1124  
 LAS2\_370\_1129  
 Number of data 572

Number of valid data: 572  
 Number of invalid data: 0  
 Mean Difference: -0.05 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

370\_1124 - 370\_1129





Multi-beam Echosounder Data Inspection

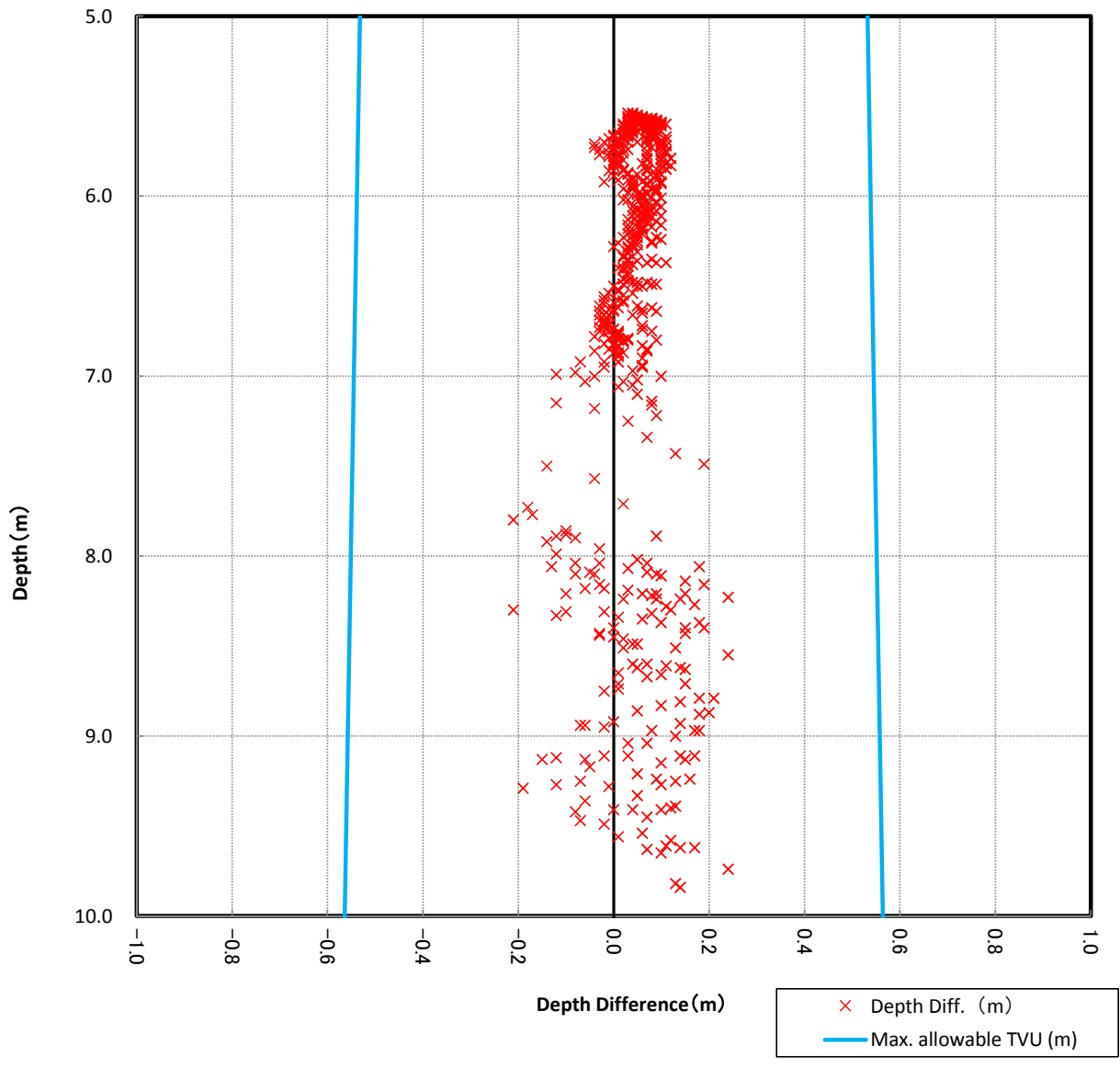
No.46

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS2\_805\_1126  
 LAS2\_805\_1127  
 Number of data 595

Number of valid data: 595  
 Number of invalid data: 0  
 Mean Difference: 0.04 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

805\_1126 - 805\_1127



### Multi-beam Echosounder Data Inspection

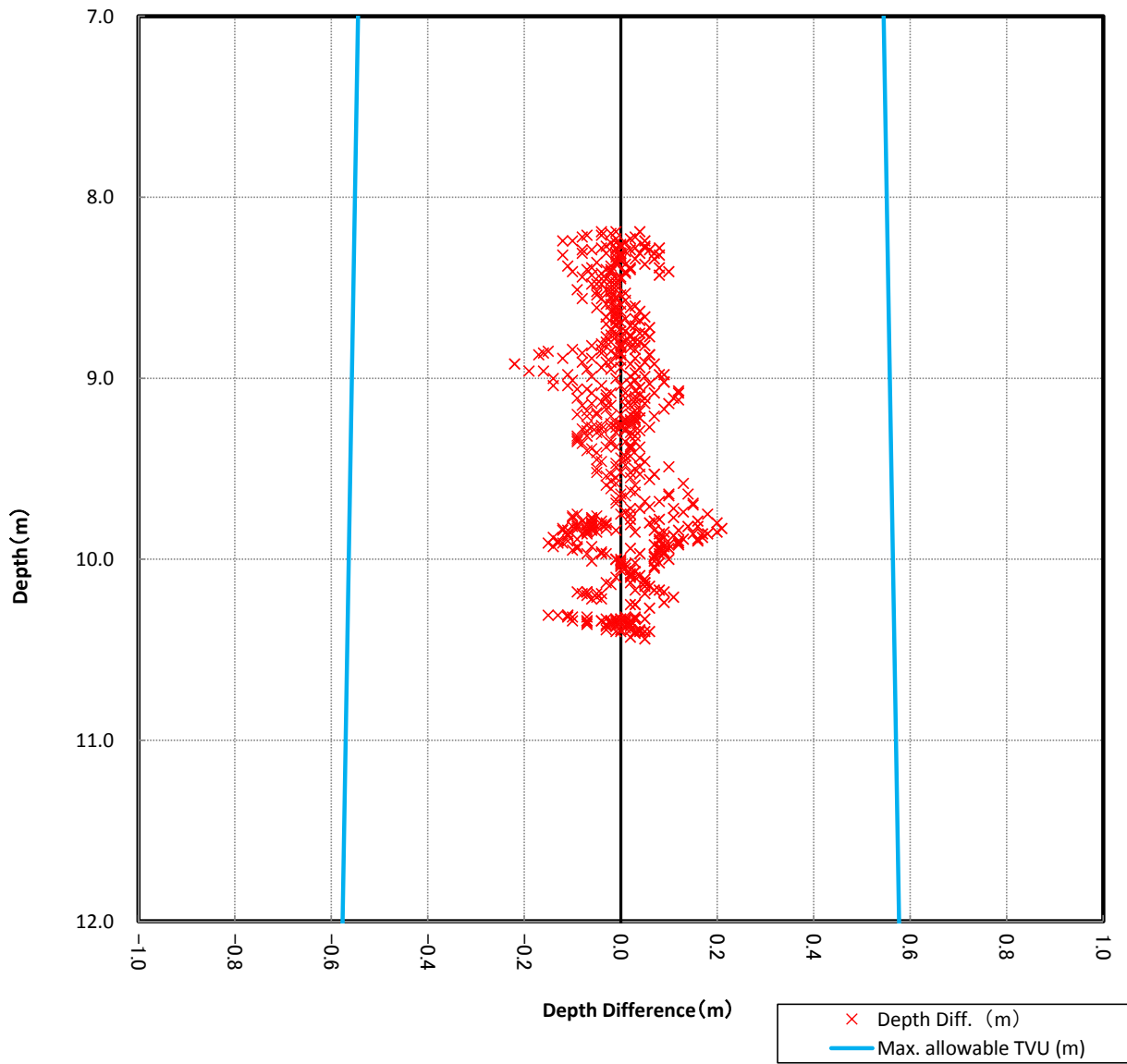
No.47

Area: Sihanoukville harbour  
Order: 1a,1b  
Survey Line: LAS2\_988\_1215  
LAS2\_988\_1216  
Number of data 587

Number of valid data: 587  
Number of invalid data: 0  
Mean Difference: 0.00 m  
Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
a = 0.5 b = 0.013  
d = depth

### Comparison of Average 5m mesh depth data

988\_1215 - 988\_1216

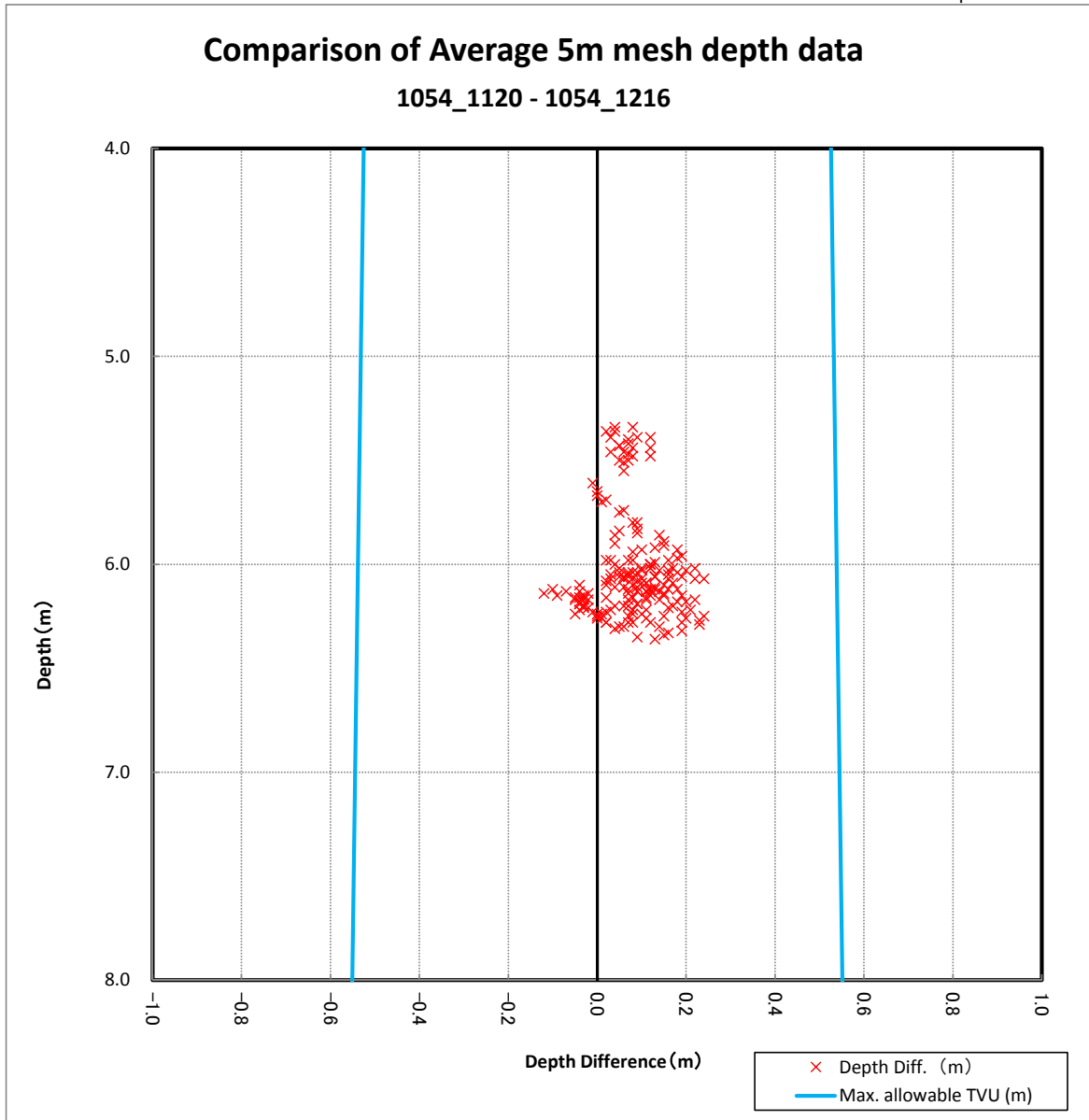


Multi-beam Echosounder Data Inspection

No.48

Area: Sihanoukville harbour  
 Order: 1b  
 Survey Line: LAS2\_1054\_1120  
 LAS2\_1054\_1216  
 Number of data 193

Number of valid data: 193  
 Number of invalid data: 0  
 Mean Difference: 0.08 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



Multi-beam Echosounder Data Inspection

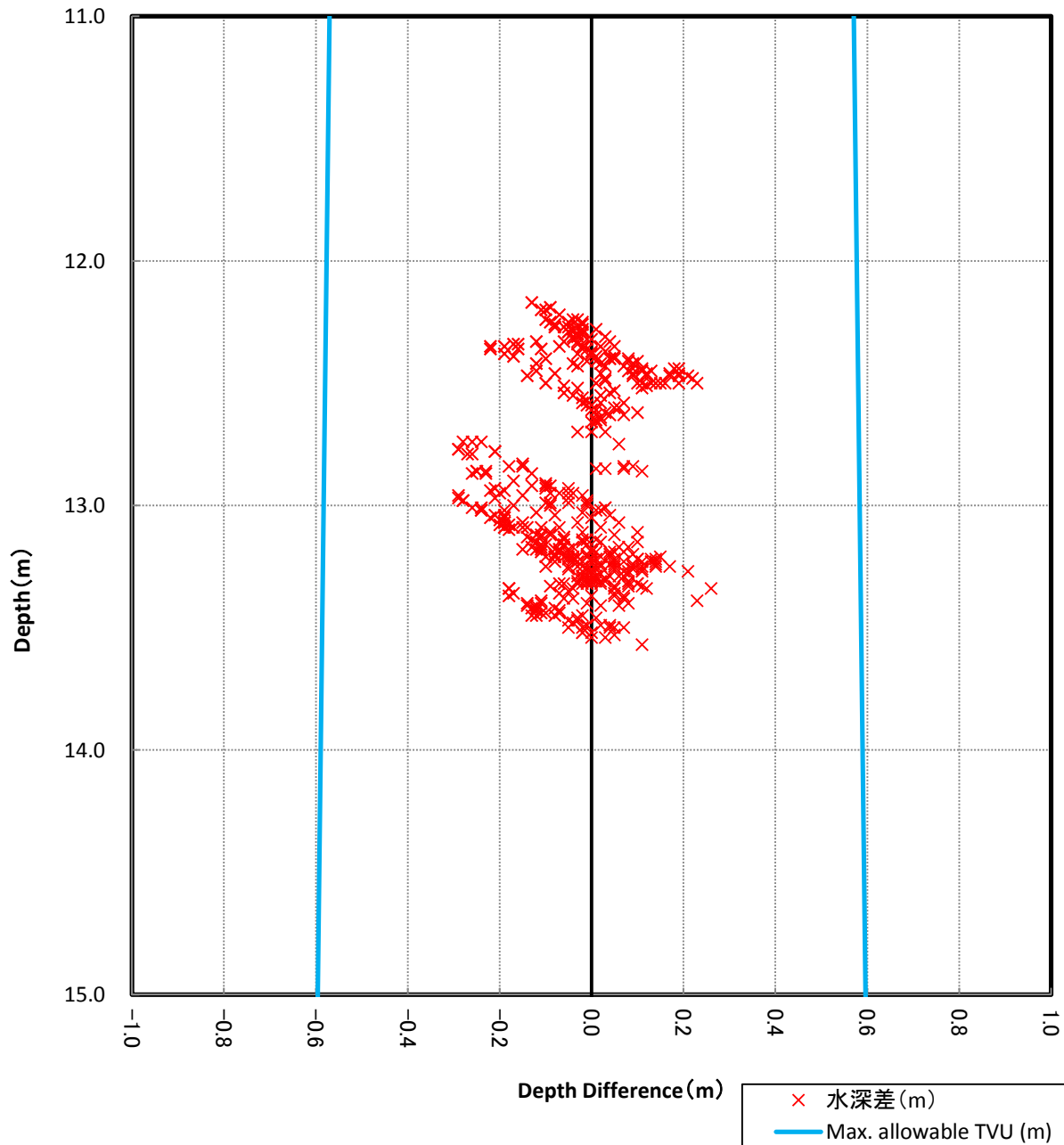
No.49

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: LAS2\_1244\_1119  
 LAS2\_1244\_1121  
 Number of data 447

Number of valid data: 447  
 Number of invalid data: 0  
 Mean Difference: -0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

1244\_1119 - 1244\_1121



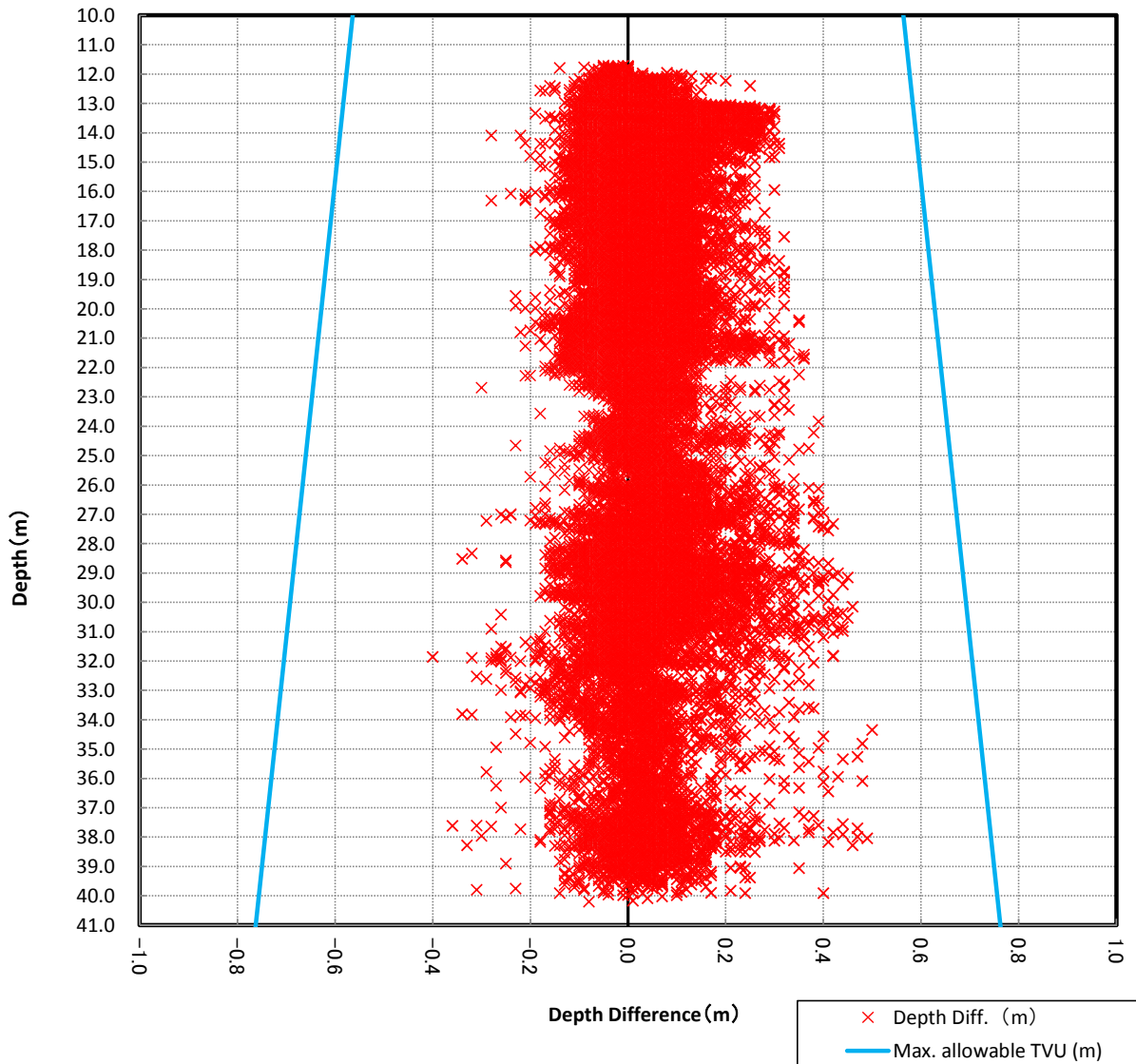
Multi-beam Echosounder Data Inspection

No.50

Area: Sihanoukville harbour  
 Order: 1a  
 Survey Line: Inspection Line1  
 Surveyed Value  
 Number of data 62,248

Number of valid data: 62,248  
 Number of invalid data: 0  
 Mean Difference: 0.02 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 No.50 Inspection Line1 - Surveyed Value



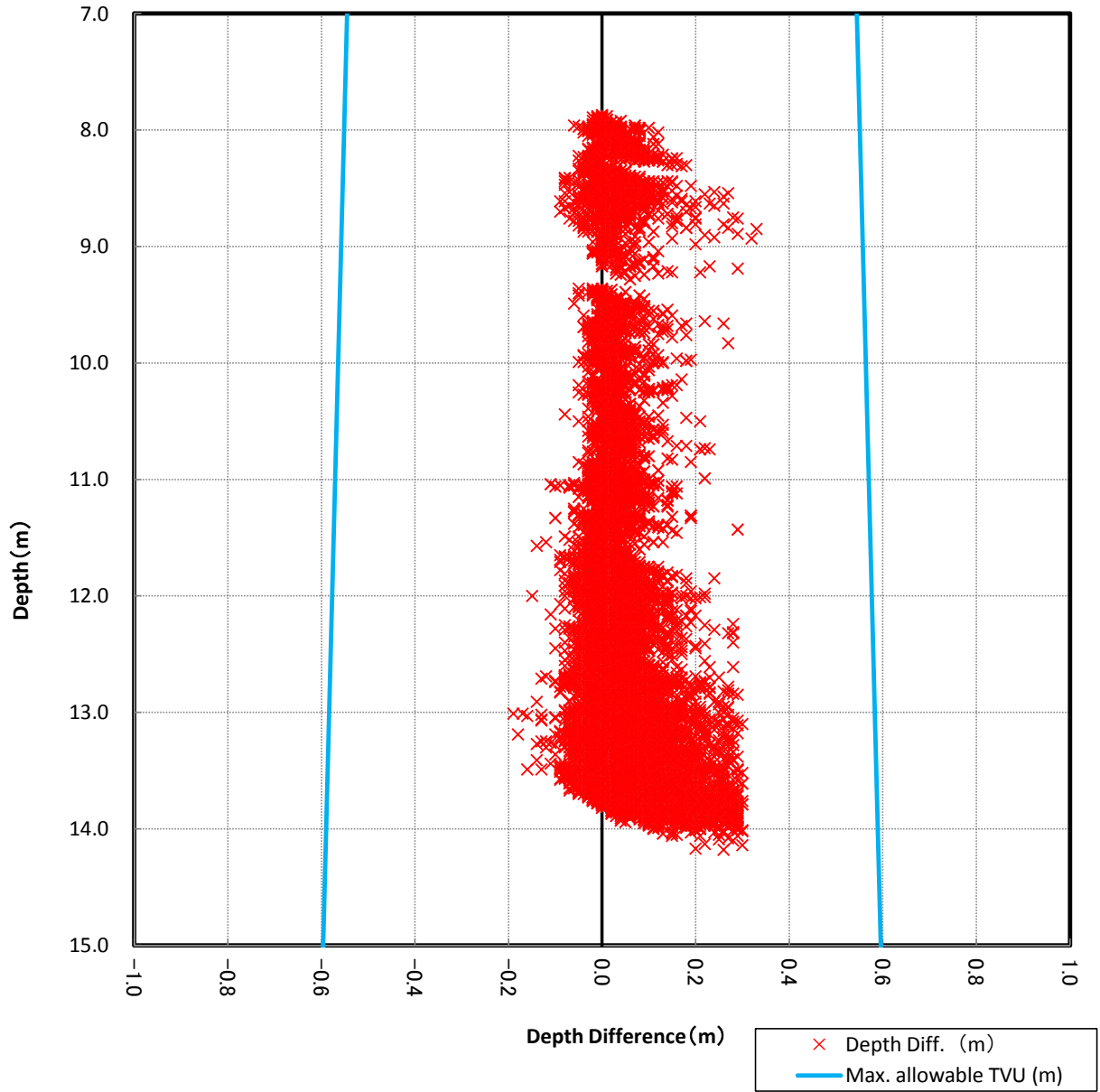
Multi-beam Echosounder Data Inspection

No.51

Area: Sihanoukville harbour  
 Order: 1a,1b  
 Survey Line: Inspection Line2  
 Surveyed Value  
 Number of data 27,440

Number of valid data: 27,440  
 Number of invalid data: 0  
 Mean Difference: 0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 No.50 Inspection Line2 - Surveyed Value**



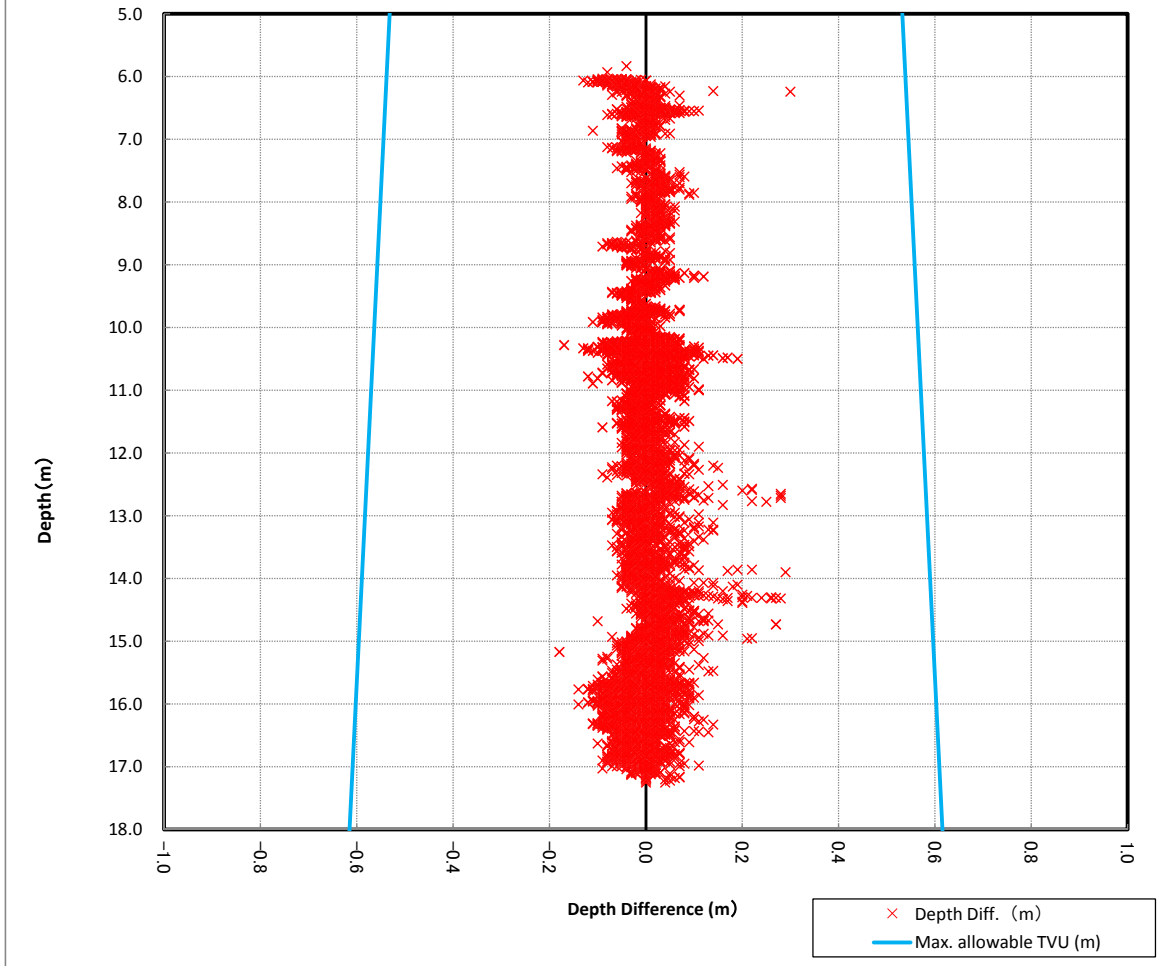
Multi-beam Echosounder Data Inspection

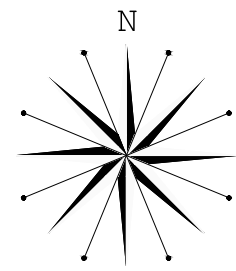
No.52

Area: Sihanoukville harbour  
 Order: 1a.1b  
 Survey Line: Inspection Line3  
 Surveyed Value  
 Number of data 12,190

Number of valid data: 12,190  
 Number of invalid data: 0  
 Mean Difference: 0.00 m  
 Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

**Comparison of Average 5m mesh depth data  
 No.50 Inspection Line3 - Surveyed Value**





KOH KONG

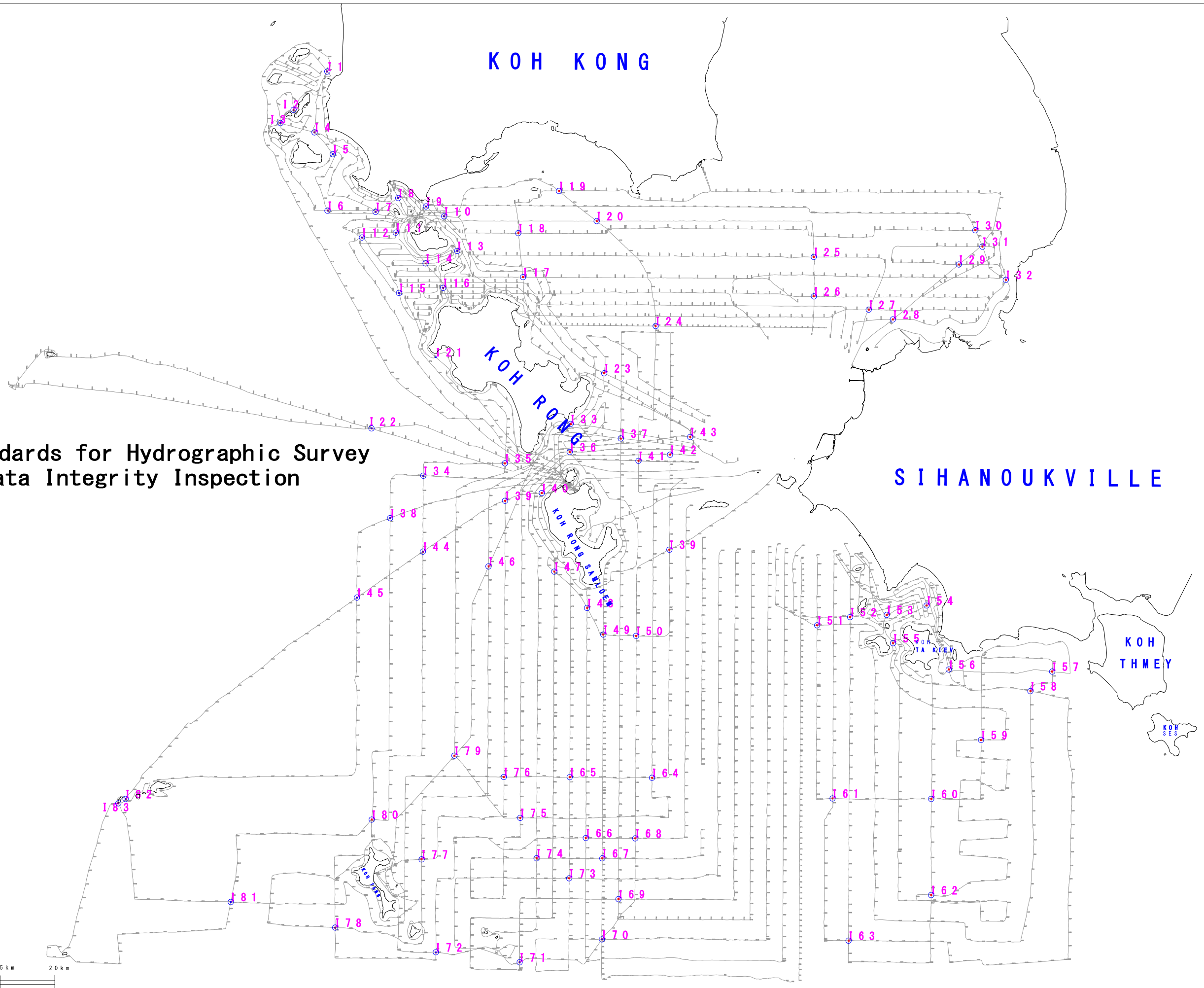
KOH RONG

SIHANOUKVILLE

KOH THMEY

KOH SES

S-44: IHO Standards for Hydrographic Survey  
Depth Data Integrity Inspection





Appendix 5 : Data inspection result

S-44 Multi-beam Echosounder Data Accuracy Inspection

Area : Kampong Saom Bay Coastal

Inspection Sample No	Survey Data Sample 1		Survey Data Sample 2		Total Number of Sample data	Invalid data		Mean Difference (m)	Result
	Survey Date	Survey Line name	Surveyed Date	File name		Number of data	Percentage (%)		
I1	04/07/2016	000_0902	05/05/2016	046_1115	59	2	3.39	0.21	Valid
I2	04/07/2016	000_1050	04/07/2016	000_1050	83	0	0.00	-0.01	Valid
I3	04/06/2016	EW27_0001	04/07/2016	000_1050	80	0	0.00	0.02	Valid
I4	04/06/2016	EW27_0001	05/05/2016	046_1115	29	0	0.00	0.18	Valid
I5	04/07/2016	000_1142	05/05/2016	046_1115	20	0	0.00	0.05	Valid
I6	04/06/2016	EW25_0001	05/05/2016	046_1115	196	0	0.00	0.29	Valid
I7	04/07/2016	000_1234	05/05/2016	046_1213	78	0	0.00	0.14	Valid
I8	04/05/2016	EW11_0005	05/05/2016	046_1213	42	0	0.00	0.10	Valid
I9	03/28/2016	EW25	04/05/2016	EW11_0003	72	0	0.00	-0.08	Valid
I10	04/06/2016	EW19_0001	04/07/2016	000_1312	47	0	0.00	0.02	Valid
I11	04/05/2016	EW13_0002	04/06/2016	EW19_0003	111	0	0.00	0.00	Valid
I12	04/25/2016	014_1412_0	04/05/2016	EW13_0002	203	4	1.97	-0.27	Valid
I13	03/29/2016	EW5	03/29/2016	EW7	171	0	0.00	0.00	Valid
I14	03/16/2016	000_1134	04/04/2016	EW14	178	0	0.00	-0.01	Valid
I15	04/25/2016	014_1412_0	04/04/2016	EW8_0007	245	0	0.00	-0.26	Valid
I16	03/30/2016	EW9_0002	03/28/2016	EW27	207	0	0.00	0.00	Valid
I17	03/21/2016	NR1_0004	04/05/2016	EW11_0002	94	0	0.00	-0.01	Valid
I18	04/06/2016	EW19	03/21/2016	NR1_0004	133	0	0.00	0.01	Valid
I19	03/21/2016	NR1_0002	05/05/2016	M6000	71	0	0.00	0.06	Valid
I20	03/16/2016	000_1308	05/05/2016	M6000	128	0	0.00	0.15	Valid
I21	03/28/2016	EW27	04/04/2016	EW8_0008	144	0	0.00	-0.06	Valid
I22	04/27/2016	021_1257	04/27/2016	021_0842	354	0	0.00	-0.06	Valid
I23	03/29/2016	EW9	05/02/2016	S22_0008	218	0	0.00	0.23	Valid
I24	03/16/2016	N2	05/05/2016	M6000_0001	95	1	1.05	0.10	Valid
I25	03/16/2016	000_1308	04/04/2016	EW15_0001	48	0	0.00	-0.02	Valid
I26	03/16/2016	000_1308	03/25/2016	008_1005	64	0	0.00	-0.03	Valid
I27	03/25/2016	005_0910	04/04/2016	EW15	103	0	0.00	-0.05	Valid
I28	03/21/2016	000_0839	04/06/2016	EW20_0001	88	0	0.00	0.07	Valid
I29	03/21/2016	000_0915	03/25/2016	014_1250	79	0	0.00	-0.05	Valid
I30	03/28/2016	EW24	04/06/2016	EW20_0003	31	0	0.00	-0.06	Valid
I31	03/28/2016	EW24	03/25/2016	017_1348	34	0	0.00	-0.15	Valid
I32	03/28/2016	EW24	04/06/2016	EW20_0002	25	0	0.00	-0.05	Valid
I33	04/04/2016	EW8_0009	04/25/2016	016_1624	91	0	0.00	0.16	Valid
I34	05/04/2016	S39	04/26/2016	016_0848	301	0	0.00	-0.01	Valid
I35	04/26/2016	016_0809	04/25/2016	014_1243	307	0	0.00	0.07	Valid
I36	04/21/2016	S31_0002	05/02/2016	S22_0007	205	0	0.00	-0.04	Valid
I37	04/05/2016	EW13_0004	03/23/2016	S24_0002	167	0	0.00	-0.02	Valid
I38	05/04/2016	S38	05/04/2016	S40_0004	371	0	0.00	-0.10	Valid
I39	04/26/2016	021_1600	04/22/2016	S31_0004	299	0	0.00	-0.02	Valid
I40	03/22/2016	S27_0004	04/26/2016	021_1600	197	0	0.00	0.23	Valid
I41	03/24/2016	S1	05/05/2016	M6000_0001	228	0	0.00	0.18	Valid
I42	04/18/2016	S30_0001	03/23/2016	S21	130	0	0.00	-0.12	Valid
I43	03/21/2016	NR1_0006	03/28/2016	EW2	123	0	0.00	0.02	Valid
I44	04/26/2016	016_0848	04/26/2016	021_1515	317	0	0.00	0.11	Valid
I45	04/26/2016	021_1515	05/04/2016	S40_0004	334	0	0.00	-0.11	Valid
I46	04/23/2016	S32	05/04/2016	S25_0004	286	0	0.00	-0.22	Valid
I47	03/24/2016	S28_0002	05/02/2016	S22_0006	315	0	0.00	0.21	Valid
I48	03/18/2016	S26_0002	05/02/2016	S22_0005	394	0	0.00	0.19	Valid
I49	03/17/2016	S25_0001	05/02/2016	S22_0005	356	1	0.28	0.44	Valid

Appendix 5 : Data inspection result

S-44 Multi-beam Echosounder Data Accuracy Inspection

Area : Kampong Saom Bay Coastal

Inspection Sample No	Survey Data Sample 1		Survey Data Sample 2		Total Number of Sample data	Invalid data		Mean Difference (m)	Result
	Survey Date	Survey Line name	Surveyed Date	File name		Number of data	Percentage (%)		
150	05/02/2016	S22_0005	05/04/2016	S23_0001	325	0	0.00	-0.30	Valid
151	04/01/2016	S12	04/29/2016	S7	196	0	0.00	0.13	Valid
152	04/28/2016	S8	04/08/2016	S10	168	0	0.00	-0.07	Valid
153	04/29/2016	M1500_0005	04/28/2016	S3_0006	148	0	0.00	0.02	Valid
154	04/08/2016	S5_0005	04/20/2016	S6_0001	28	0	0.00	0.03	Valid
155	04/29/2016	M1500_0004	04/29/2016	S7	66	0	0.00	-0.07	Valid
156	04/20/2016	S6_0001	04/08/2016	S5_0004	40	0	0.00	-0.03	Valid
157	04/01/2016	S3	04/28/2016	S3_0004	53	0	0.00	0.09	Valid
158	04/28/2016	S8_0005	04/20/2016	S6_0001	77	0	0.00	-0.04	Valid
159	04/01/2016	S2_0001	04/29/2016	M1500_0003	201	0	0.00	0.11	Valid
160	04/01/2016	S1_0001	04/08/2016	S5_0002	322	0	0.00	-0.03	Valid
161	04/20/2016	S11_0001	04/01/2016	S1_0001	294	11	3.74	-0.34	Valid
162	04/08/2016	S5_0002	04/29/2016	M1500	391	0	0.00	0.15	Valid
163	04/20/2016	042_1109	04/08/2016	S10_0002	392	7	1.79	-0.29	Valid
164	04/23/2016	S21_0004	04/25/2016	S22_0003	399	0	0.00	-0.11	Valid
165	03/22/2016	S27_0002	04/23/2016	S21_0003	352	0	0.00	0.28	Valid
166	03/18/2016	S26_0001	04/22/2016	S21_0001	331	6	1.81	0.37	Valid
167	04/21/2016	S20_0001	03/17/2016	S25	343	1	0.29	-0.37	Valid
168	04/22/2016	S21_0001	05/04/2016	S23_0002	344	0	0.00	-0.31	Valid
169	03/23/2016	S24	03/24/2016	S18	371	0	0.00	-0.02	Valid
170-AB	03/22/2016	001_1047	03/17/2016	S25	368	0	0.00	-0.16	Valid
170-AC	03/22/2016	001_1047	05/04/2016	S23_0002	330	0	0.00	-0.06	Valid
170-BC	03/17/2016	S25	05/04/2016	S23_0002	344	0	0.00	0.11	Valid
171	03/24/2016	S30	05/04/2016	S23_0003	372	0	0.00	-0.03	Valid
172	04/22/2016	014_1135	05/04/2016	S23_0003	389	9	2.31	-0.34	Valid
173	03/22/2016	S27_0001	04/18/2016	S19	353	0	0.00	0.18	Valid
174	04/18/2016	S29	04/21/2016	S20_0001	359	0	0.00	0.09	Valid
175	04/25/2016	S21_0007	04/21/2016	S30_0002	374	0	0.00	0.05	Valid
176	04/22/2016	S31_0003	04/23/2016	S21_0003	330	0	0.00	0.00	Valid
177	04/22/2016	015_1345	04/23/2016	016_1004	399	0	0.00	0.06	Valid
178	04/22/2016	015_1228	04/23/2016	016_1004	320	0	0.00	-0.01	Valid
179	04/25/2016	014_1153	05/04/2016	S25_0003	350	6	1.71	-0.30	Valid
180	04/26/2016	017_1021	05/04/2016	S38_0001	385	0	0.00	0.15	Valid
181	04/26/2016	021_1143	05/04/2016	S40	400	0	0.00	0.05	Valid
182	04/26/2016	021_1325	05/04/2016	S40_0001	351	0	0.00	-0.06	Valid
183	04/26/2016	021_1325	05/04/2016	S40_0001	284	0	0.00	0.10	Valid

<Inspection Method>

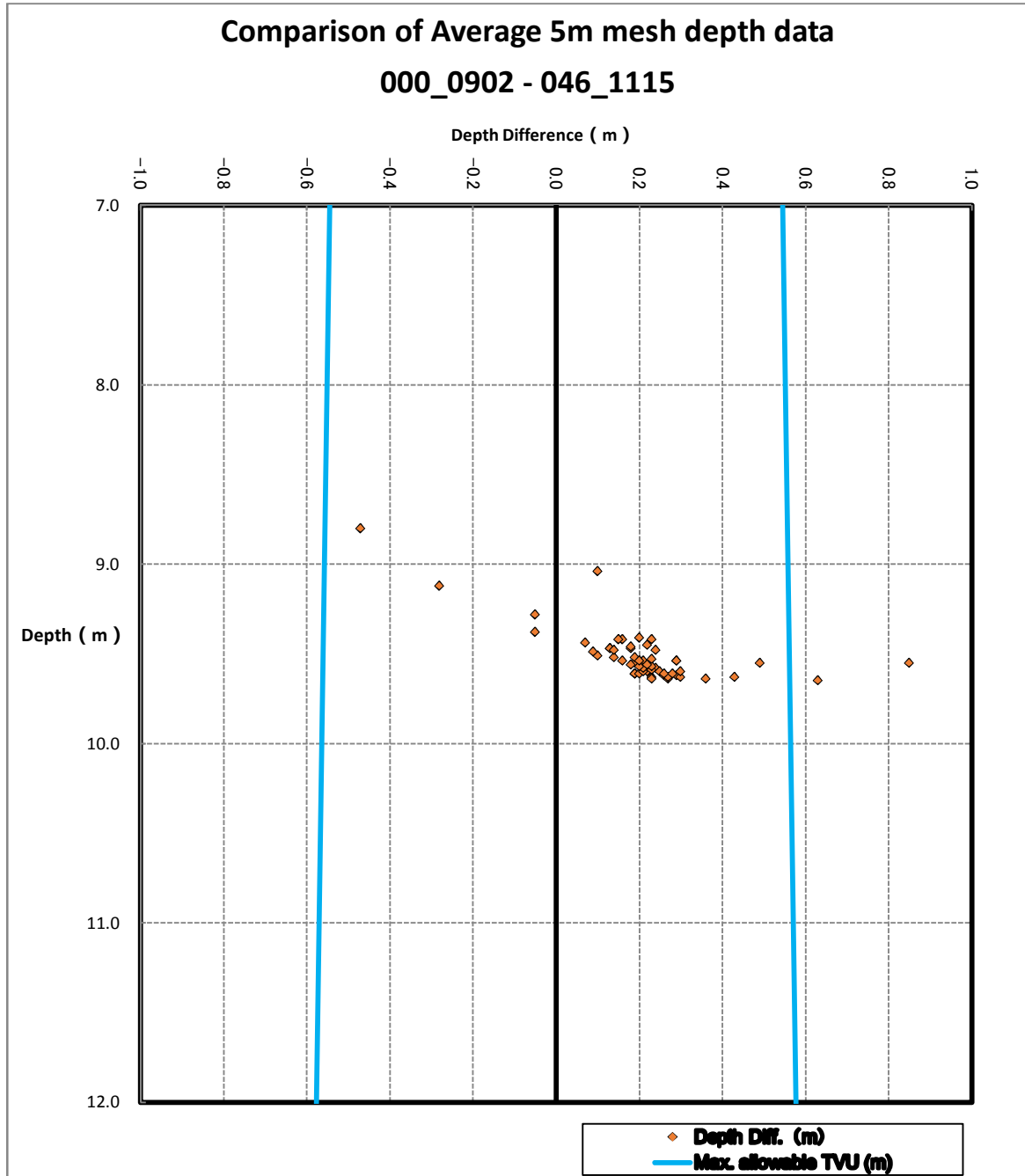
Comparing Post-processed average 5x5m mesh data of 2 survey line data which intersected together, in the same position and compare the depth.

Multi-beam Echosounder Data Inspection

No.I1

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_0902  
 046\_1115  
 Number of data 59

Number of valid data : 57 96.61%  
 Number of invalid data : 2 3.39%  
 Mean Difference : 0.21 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

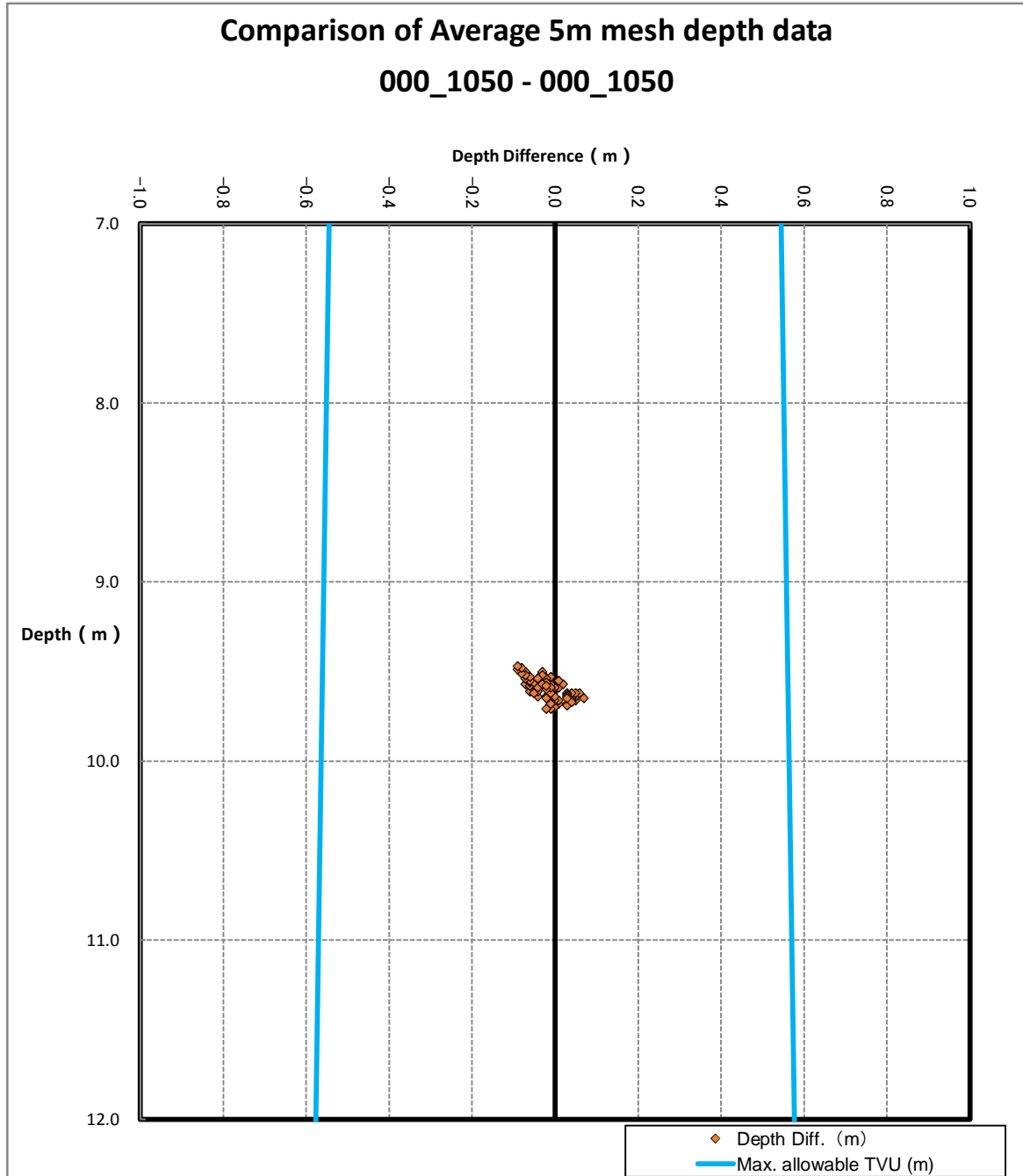


Multi-beam Echosounder Data Inspection

No.I2

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_1050  
 000\_1050  
 Number of data 83

Number of valid data : 83 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.01 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

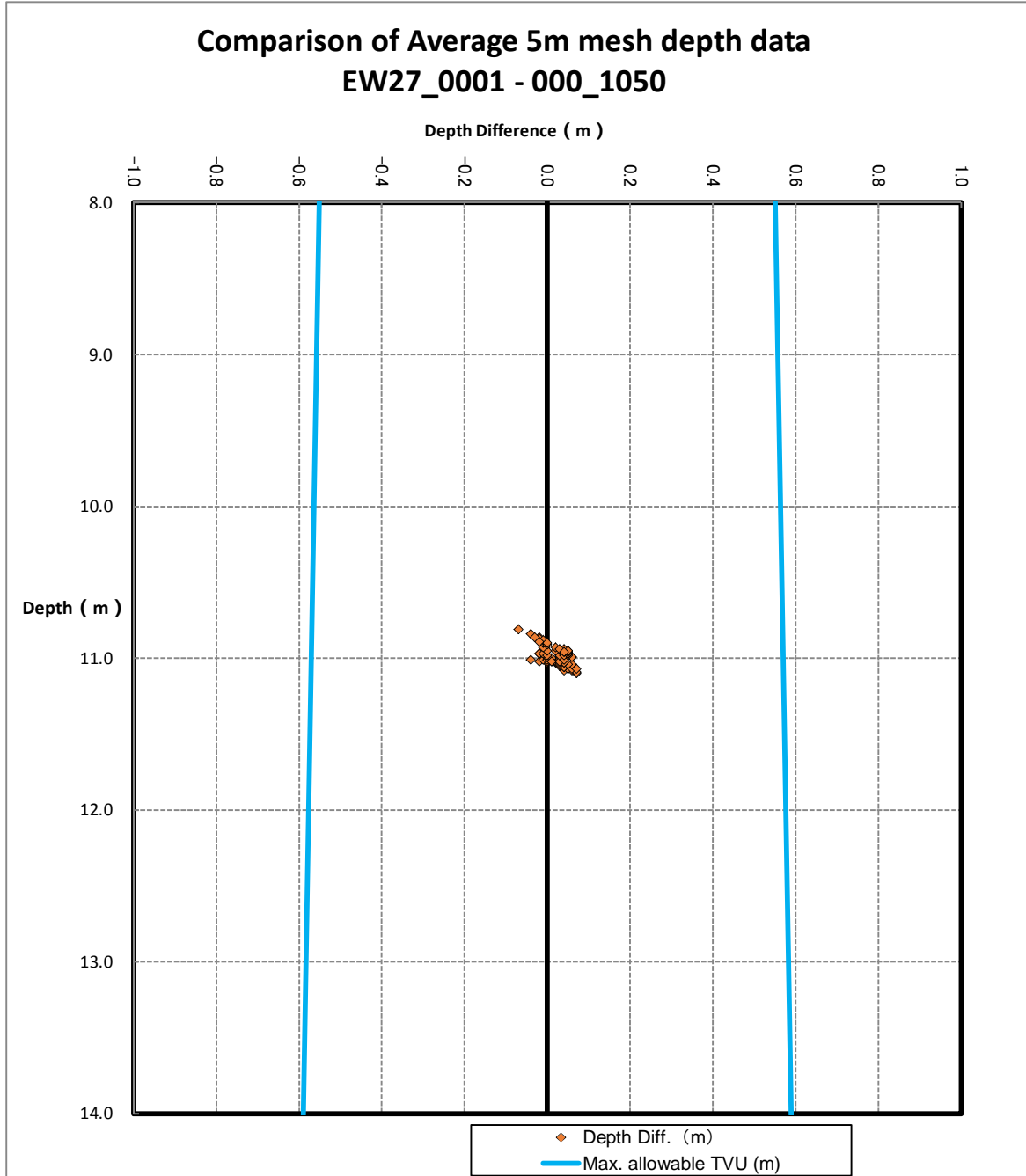


Multi-beam Echosounder Data Inspection

No.I3

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW27\_0001  
 000\_1050  
 Number of data 80

Number of valid data : 80 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.02 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

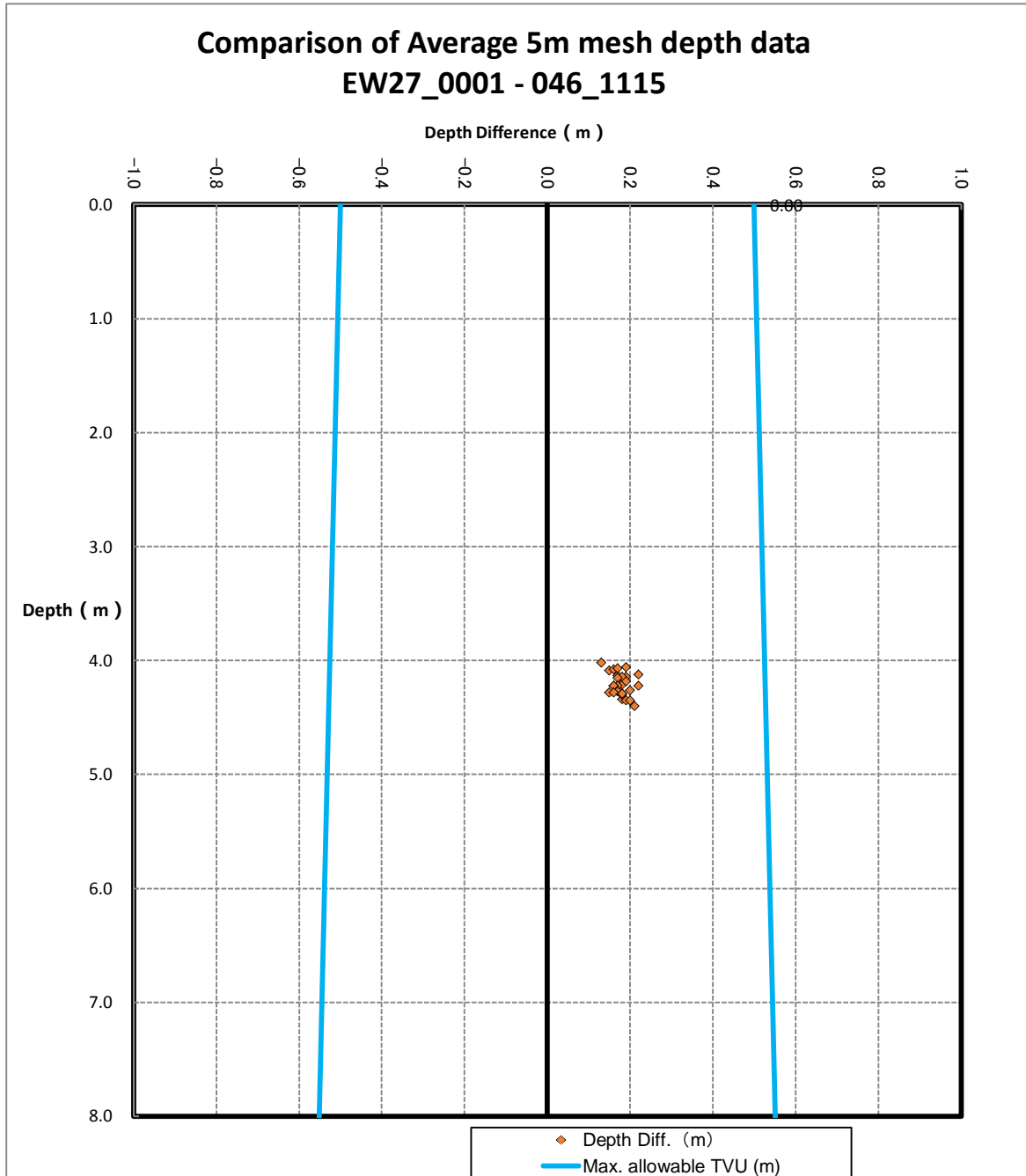


Multi-beam Echosounder Data Inspection

No.I4

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW27\_0001  
 046\_1115  
 Number of data 29

Number of valid data : 29 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.18 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



Multi-beam Echosounder Data Inspection

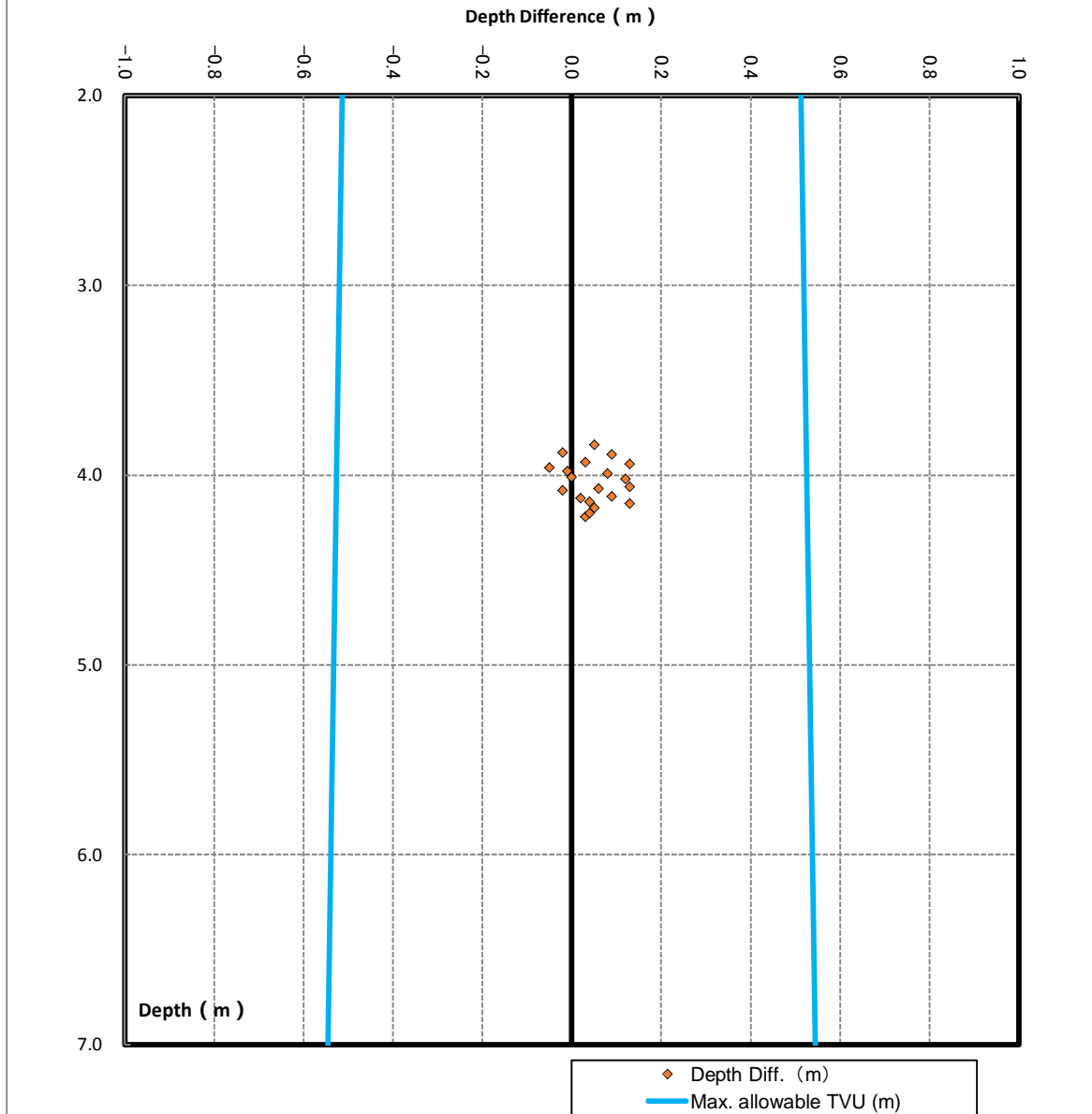
No.I5

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_1142  
 046\_1115  
 Number of data 20

Number of valid data : 20 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.05 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data

000\_1142 - 046\_1115

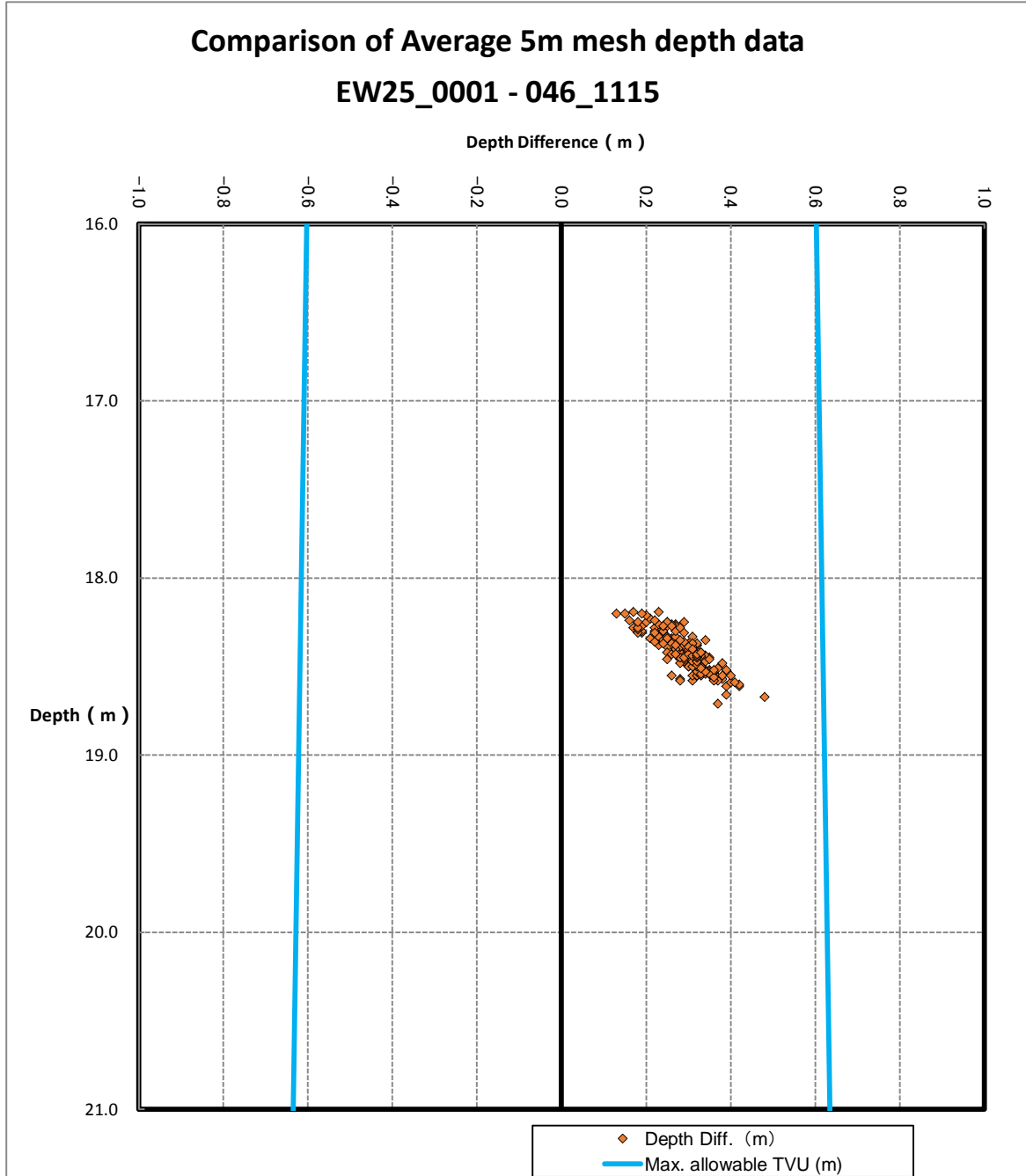


Multi-beam Echosounder Data Inspection

No.I6

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW25\_0001  
 046\_1115  
 Number of data 196

Number of valid data : 196 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.29 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth





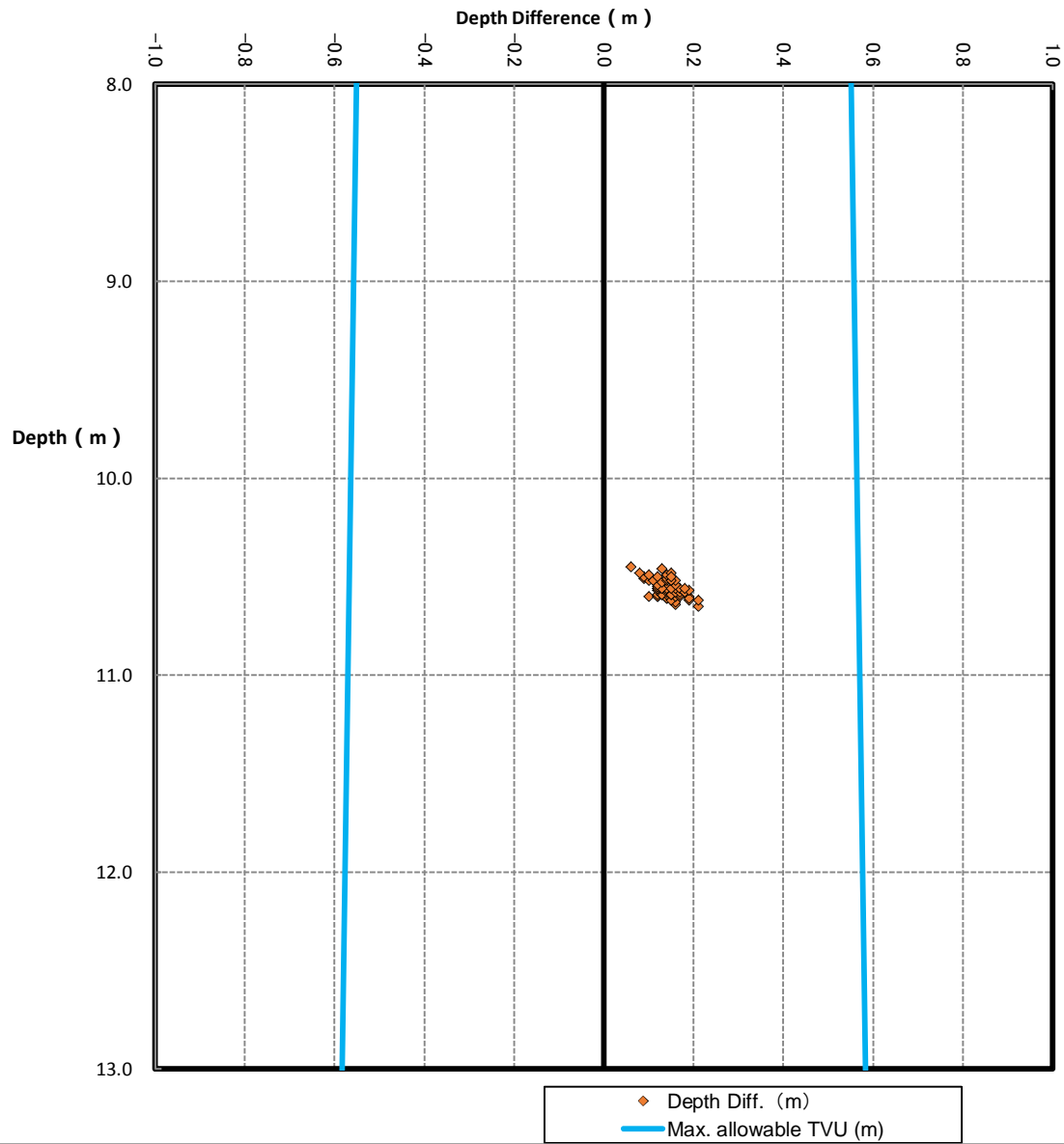
Multi-beam Echosounder Data Inspection

No.I7

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_1234  
 046\_1213  
 Number of data 78

Number of valid data : 78 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.14 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 000\_1234 - 046\_1213

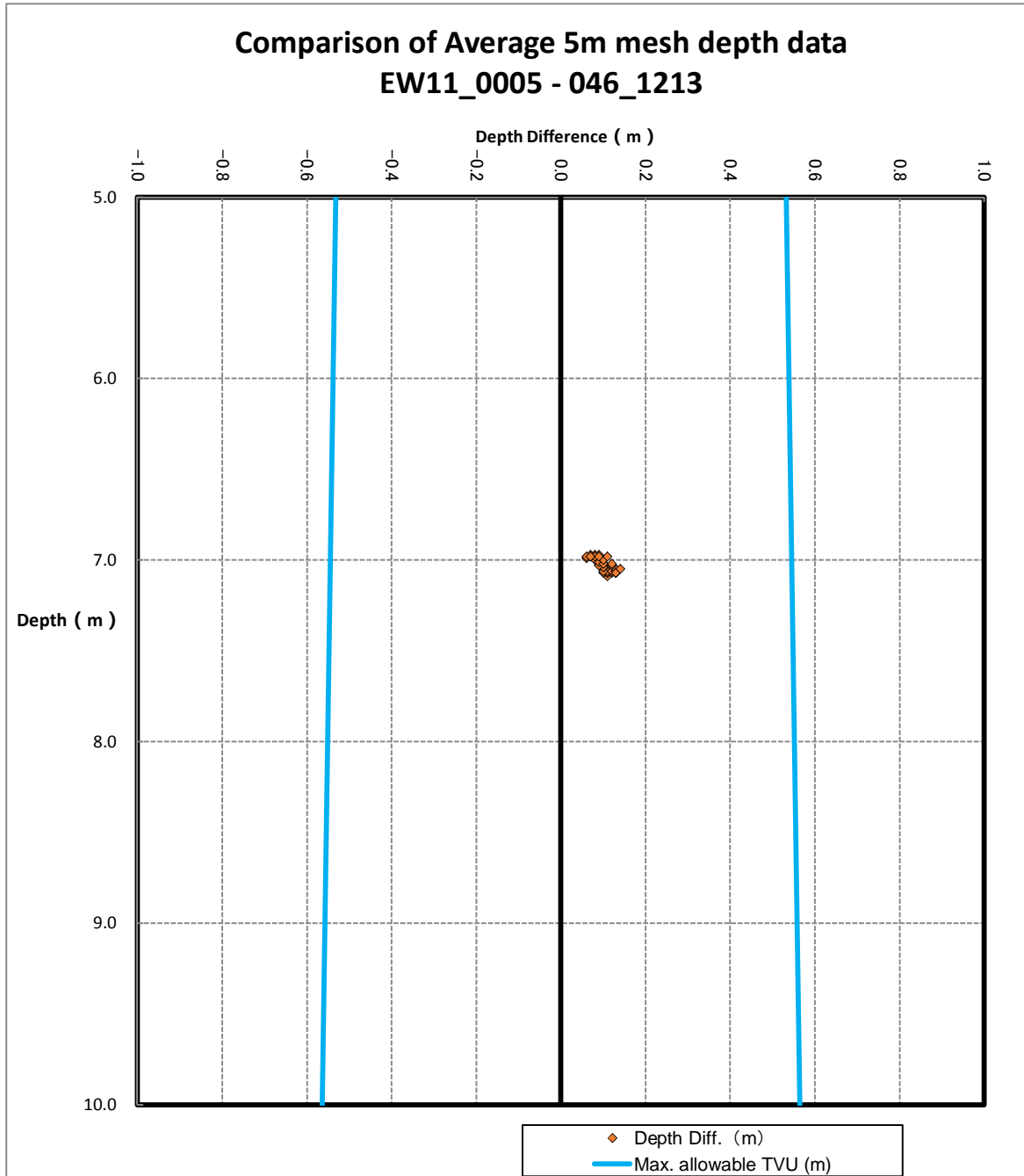


Multi-beam Echosounder Data Inspection

No.I8

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW11\_0005  
 046\_1213  
 Number of data 42

Number of valid data : 42 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.10 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

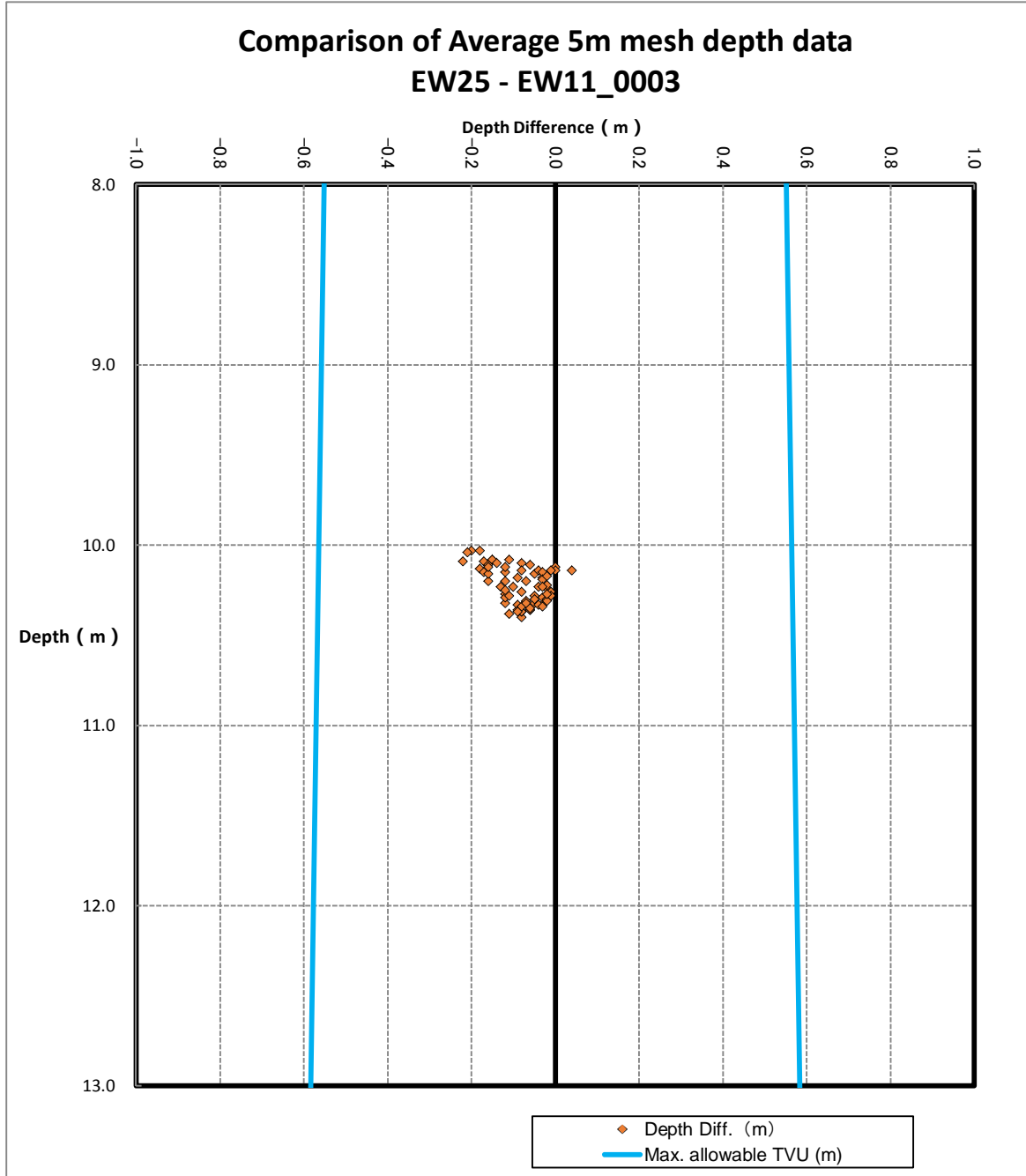


Multi-beam Echosounder Data Inspection

No.19

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW25  
 EW11\_0003  
 Number of data 72

Number of valid data : 72 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.08 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

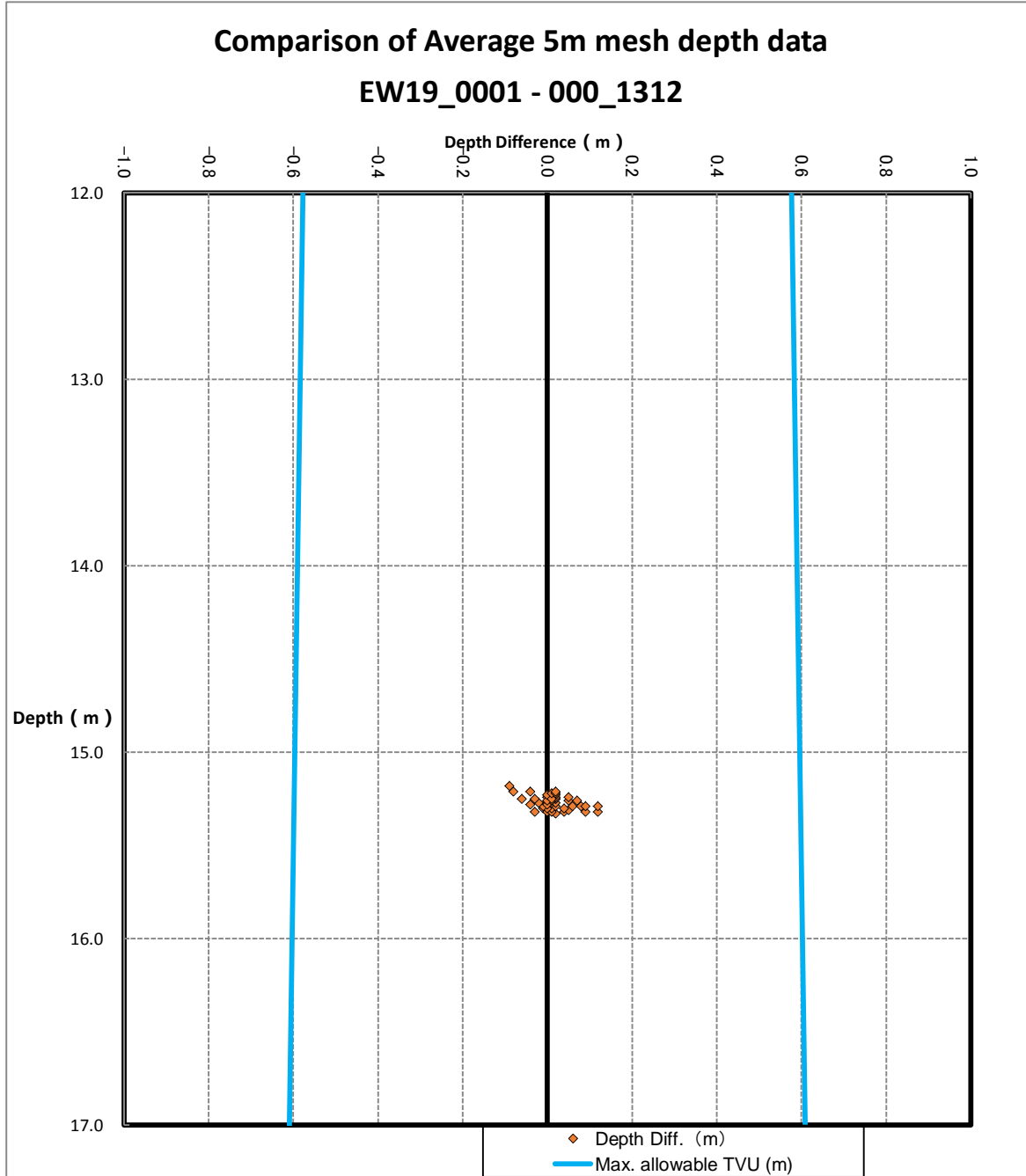


Multi-beam Echosounder Data Inspection

No.I10

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW19\_0001  
 000\_1312  
 Number of data 47

Number of valid data : 47 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.02 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



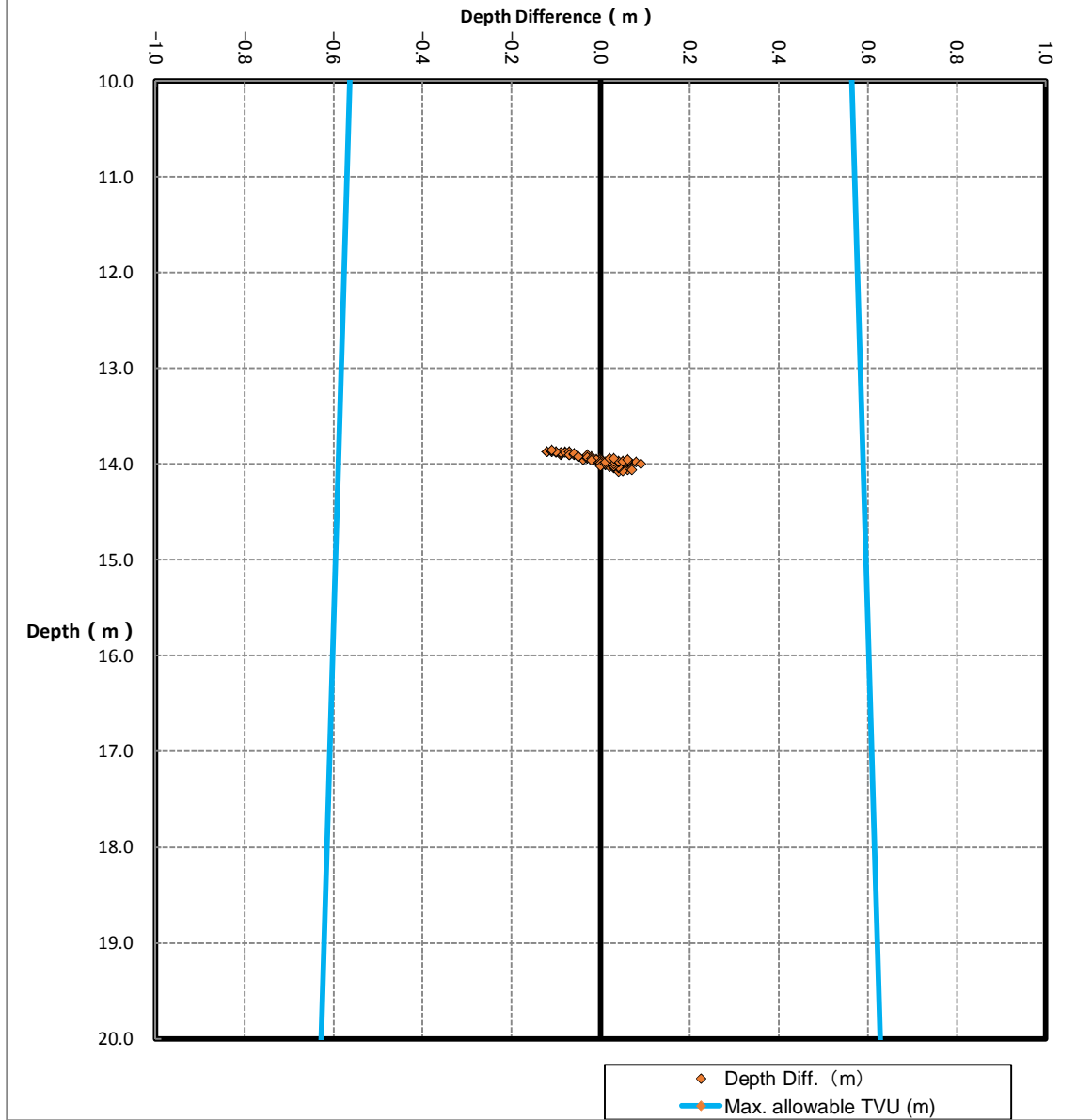
Multi-beam Echosounder Data Inspection

No.I11

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW13\_0002  
 EW19\_0003  
 Number of data 111

Number of valid data : 111 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.00 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 EW13\_0002 - EW19\_0003

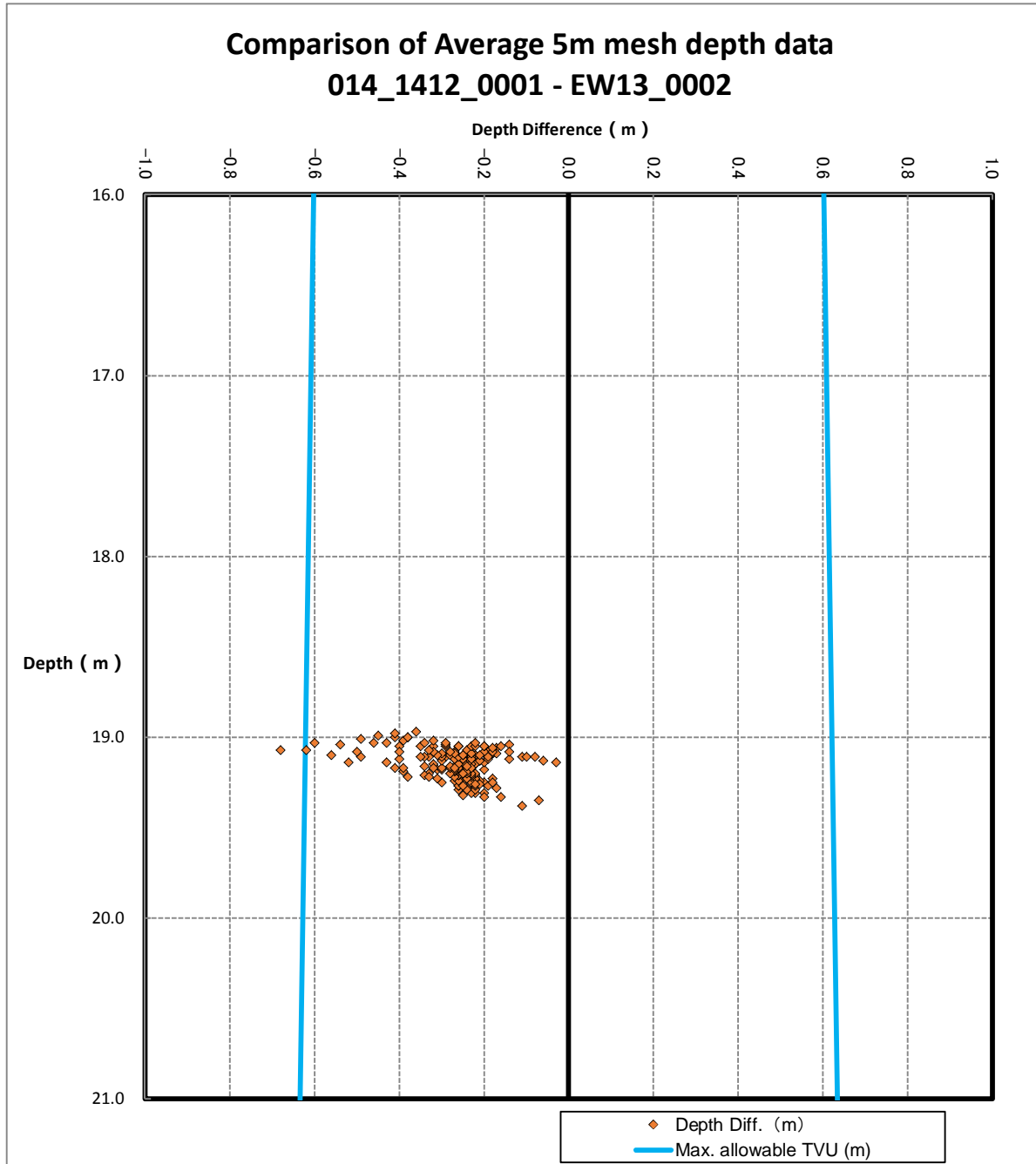


Multi-beam Echosounder Data Inspection

No.I12

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 014\_1412\_0001  
 EW13\_0002  
 Number of data 203

Number of valid data: 199 98.03%  
 Number of invalid data: 4 1.97%  
 Mean Difference: -0.27 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

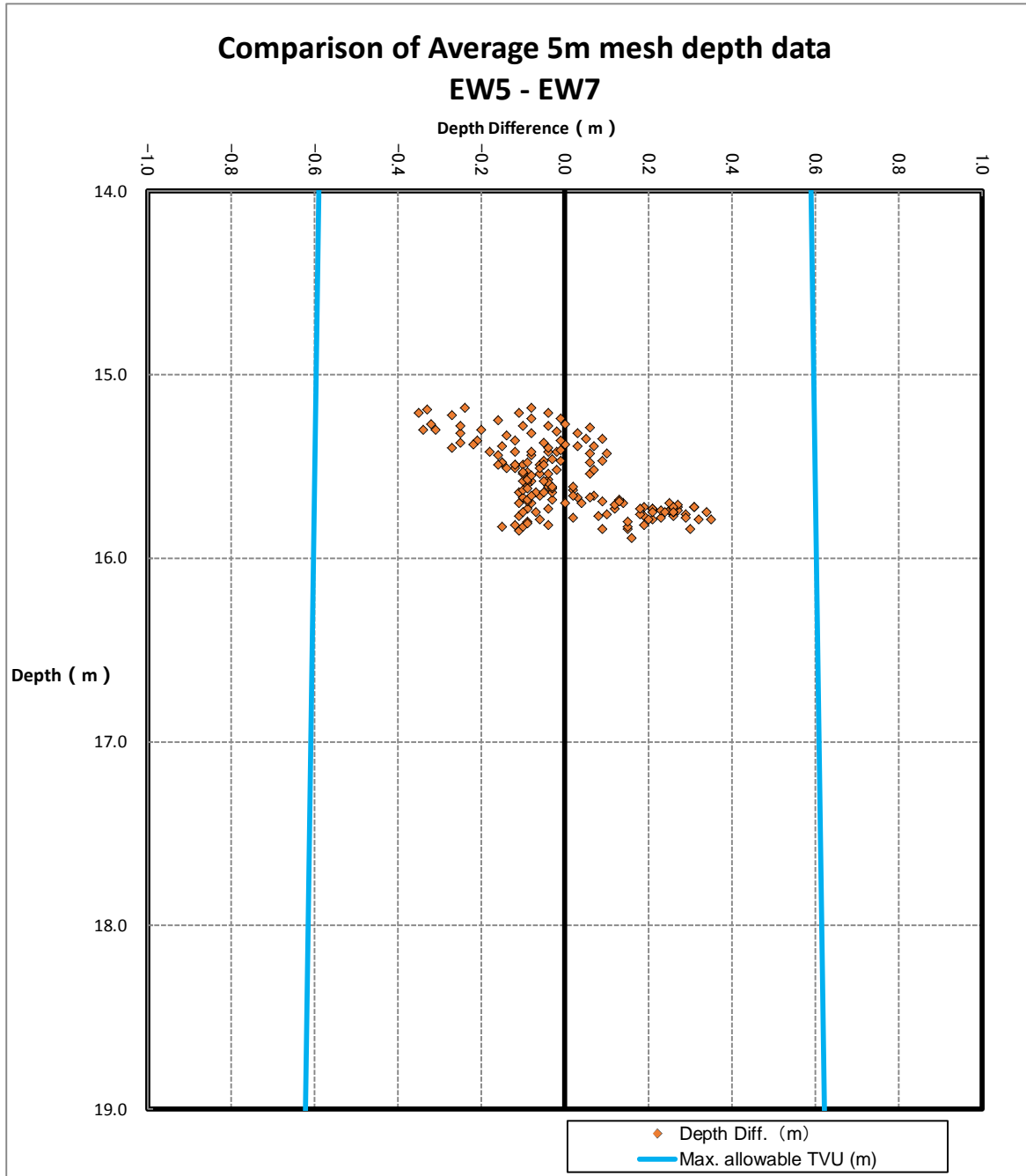


Multi-beam Echosounder Data Inspection

No.I13

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW5  
 EW7  
 Number of data 171

Number of valid data : 171 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.00 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

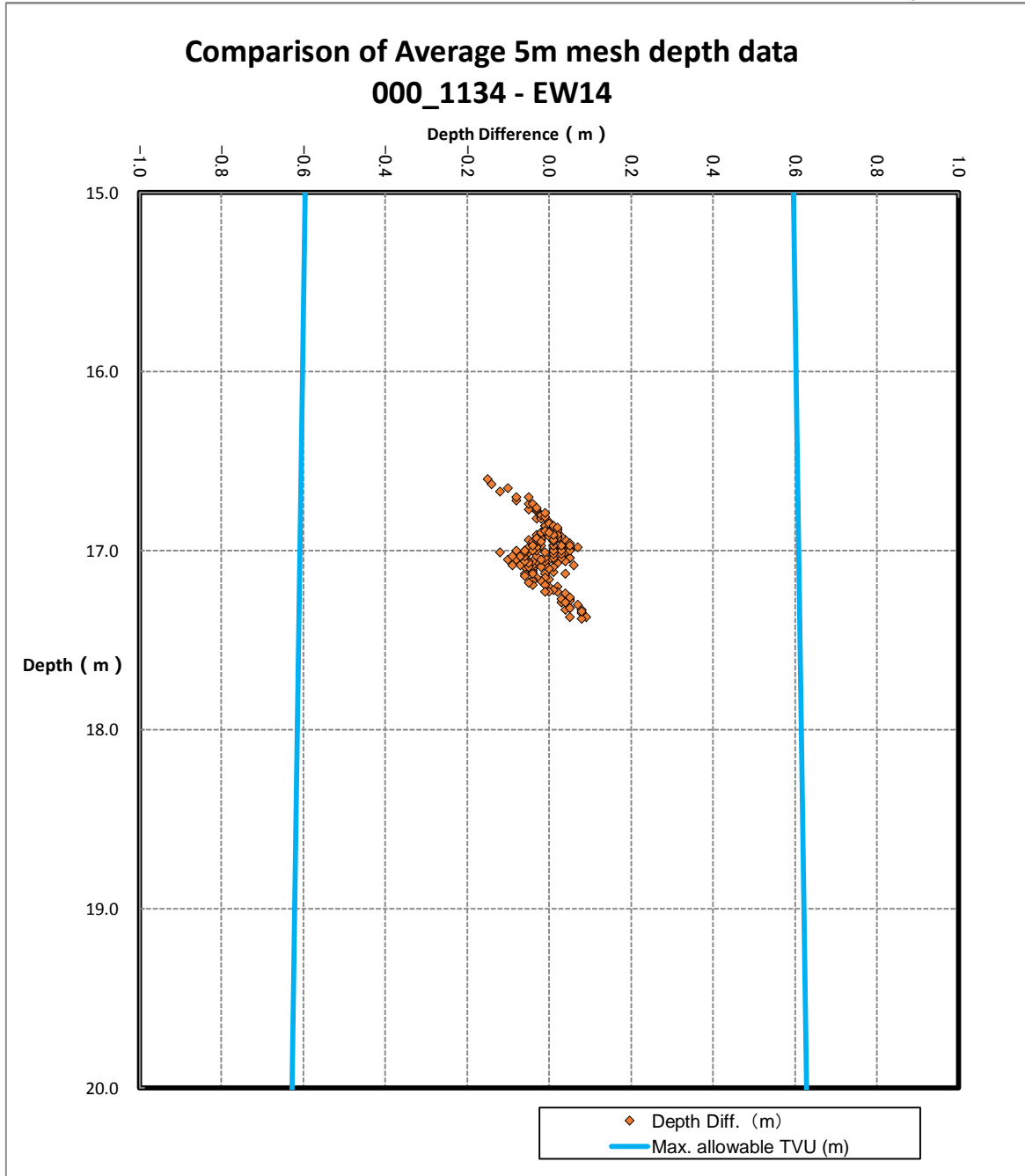


Multi-beam Echosounder Data Inspection

No.I14

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_1134  
 EW14  
 Number of data 178

Number of valid data : 178 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.01 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth





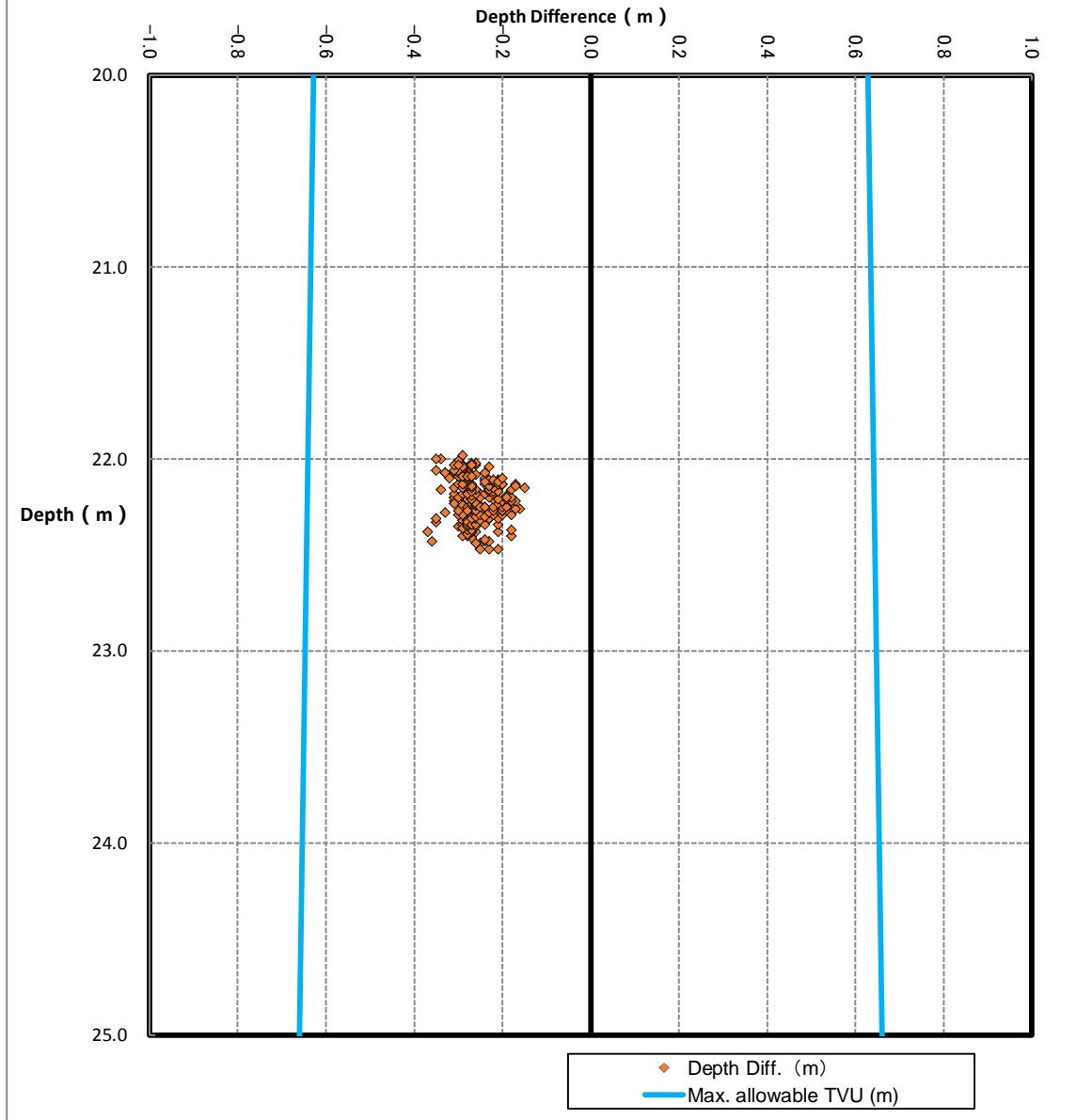
Multi-beam Echosounder Data Inspection

No.I15

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 014\_1412\_0001  
 EW8\_0007  
 Number of data 245

Number of valid data : 245 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.26 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 000\_1412\_0001 - EW8\_0007

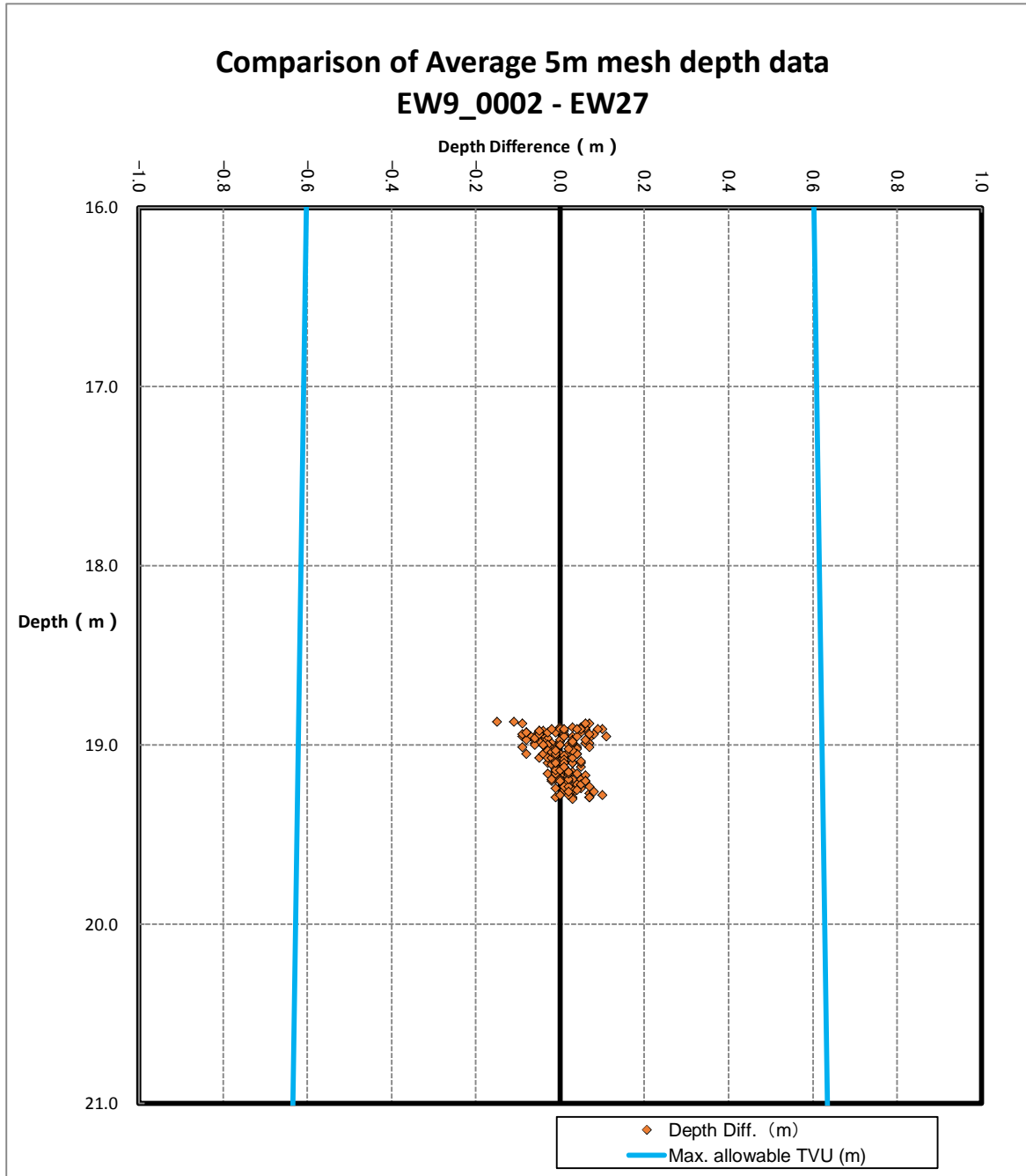


Multi-beam Echosounder Data Inspection

No.I16

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW9\_0002  
 EW27  
 Number of data 207

Number of valid data : 207 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.00 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

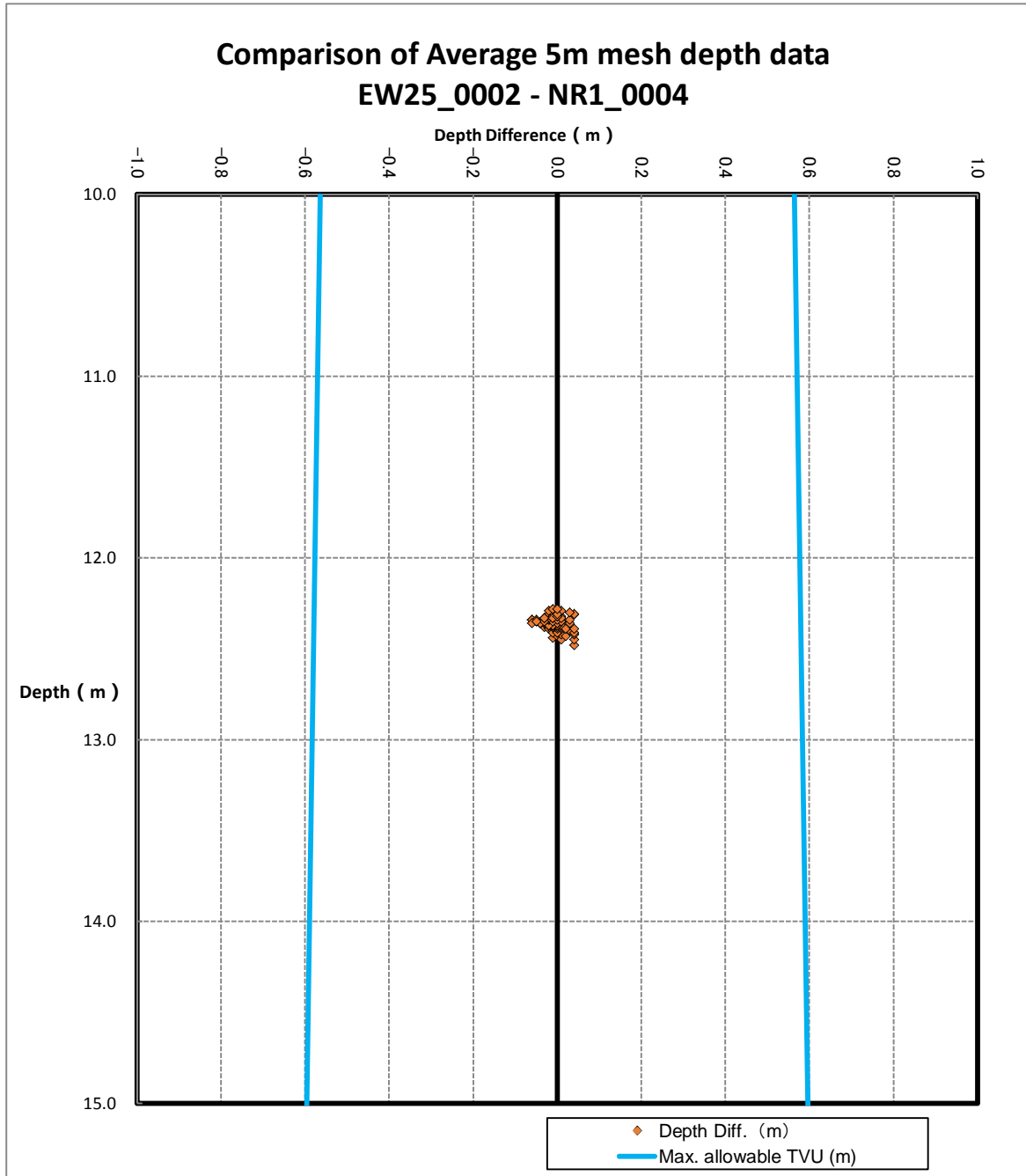


Multi-beam Echosounder Data Inspection

No.I17

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW11\_0002  
 NR1\_0004  
 Number of data 94

Number of valid data : 94 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.01 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

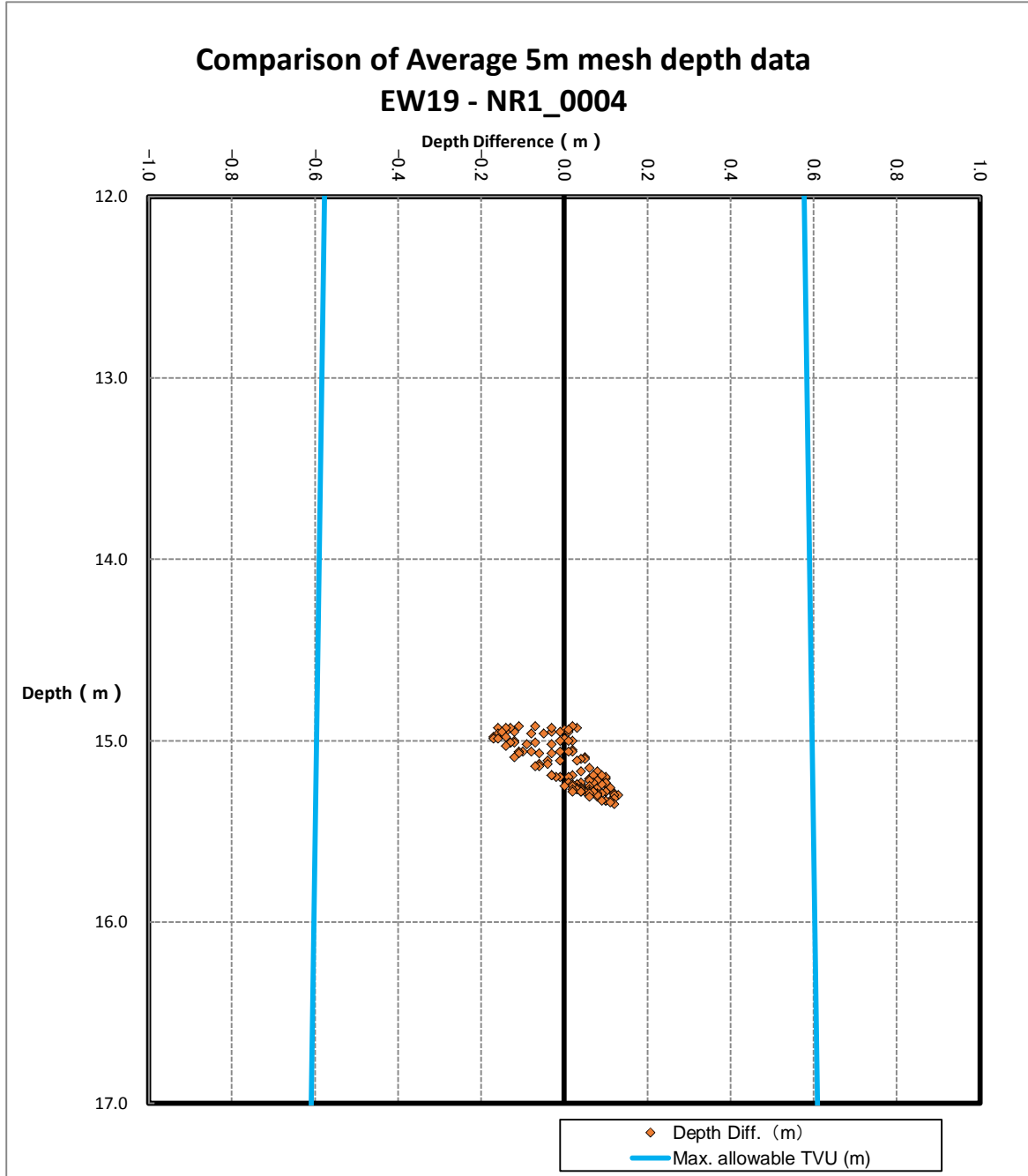


Multi-beam Echosounder Data Inspection

No.I18

Area : Kampolnvalid Saom Bay Coastal and Approach  
 Order : 1a  
 Survey Line : EW19  
 NR1\_0004  
 Number of data 133

Number of valid data : 133 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.01 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

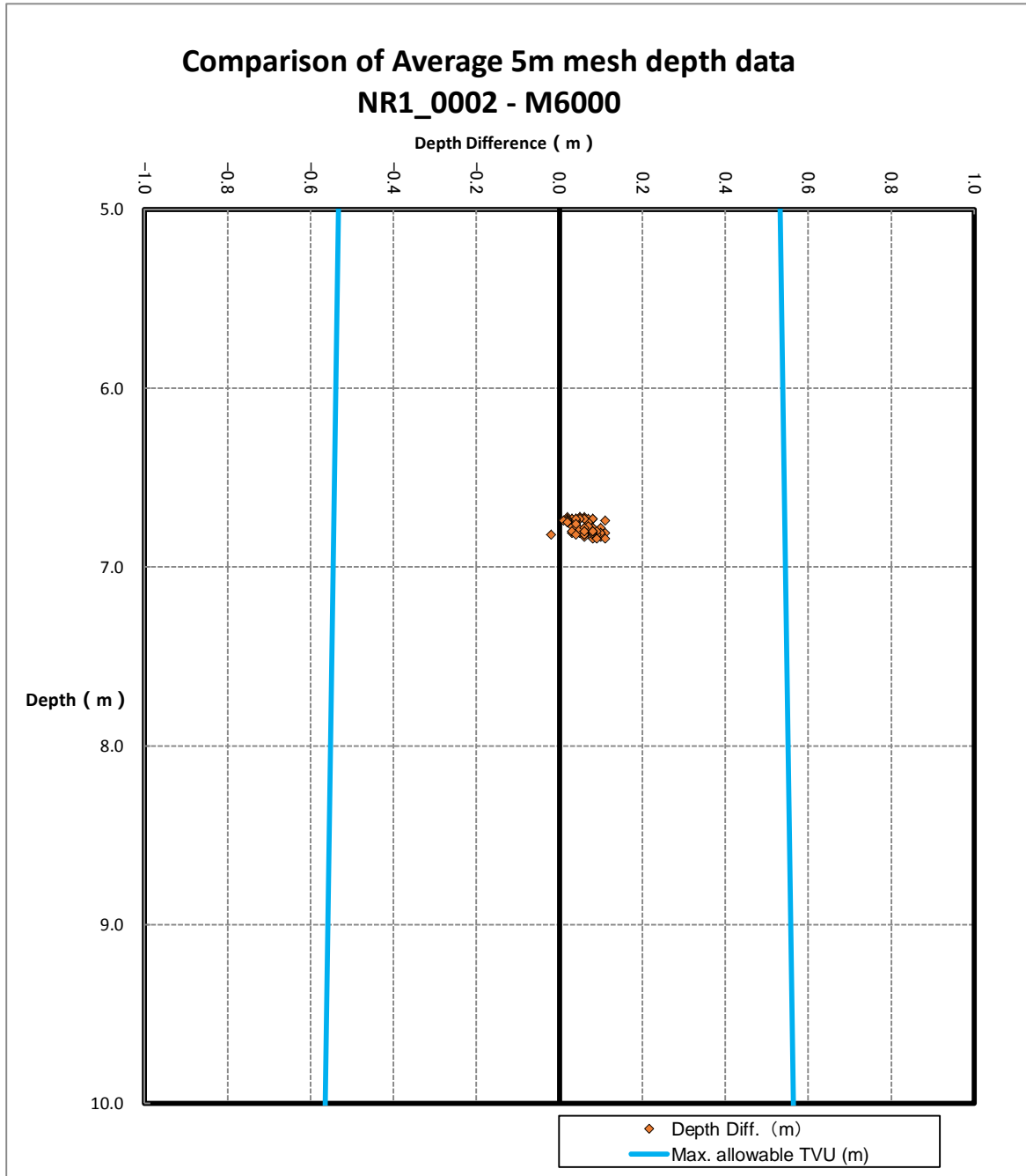


Multi-beam Echosounder Data Inspection

No.I19

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : NR1\_0002  
 M6000  
 Number of data 71

Number of valid data : 71 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.06 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

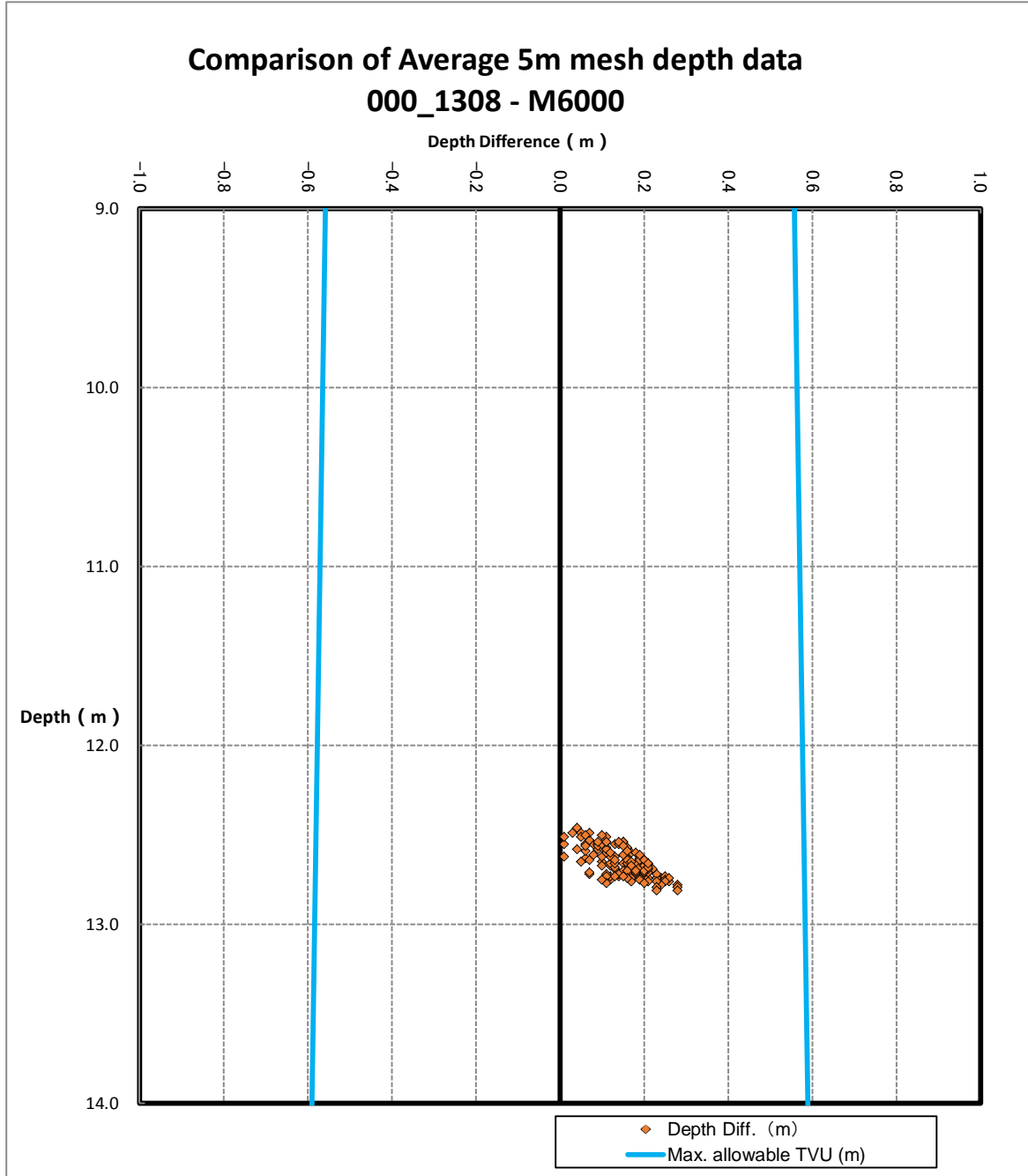


Multi-beam Echosounder Data Inspection

No.I20

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_1308  
 M6000  
 Number of data 128

Number of valid data : 128 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.15 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



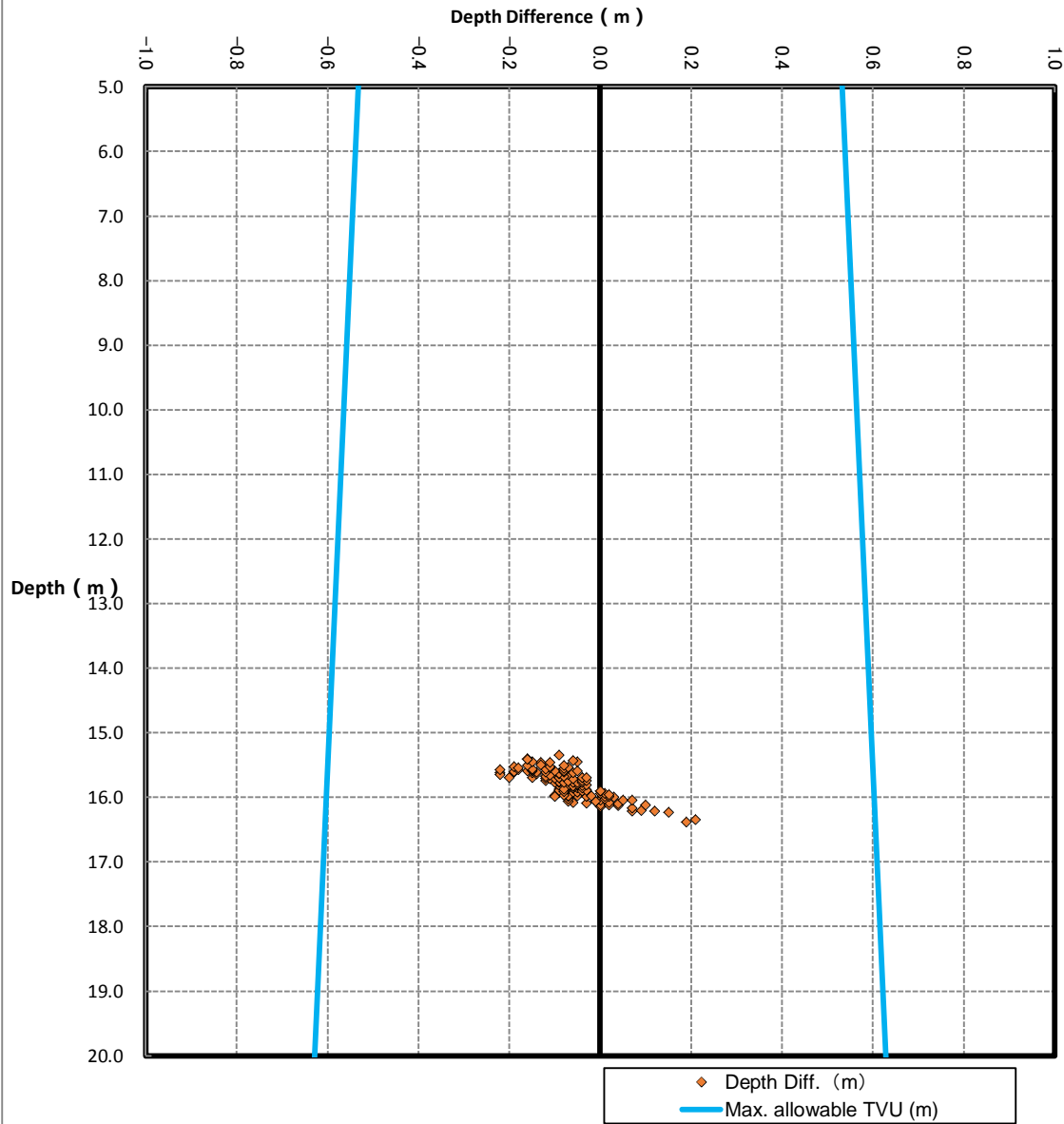
Multi-beam Echosounder Data Inspection

No.I21

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW27  
 EW8\_0008  
 Number of data 144

Number of valid data : 144 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.06 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 EW27 - EW8\_0008

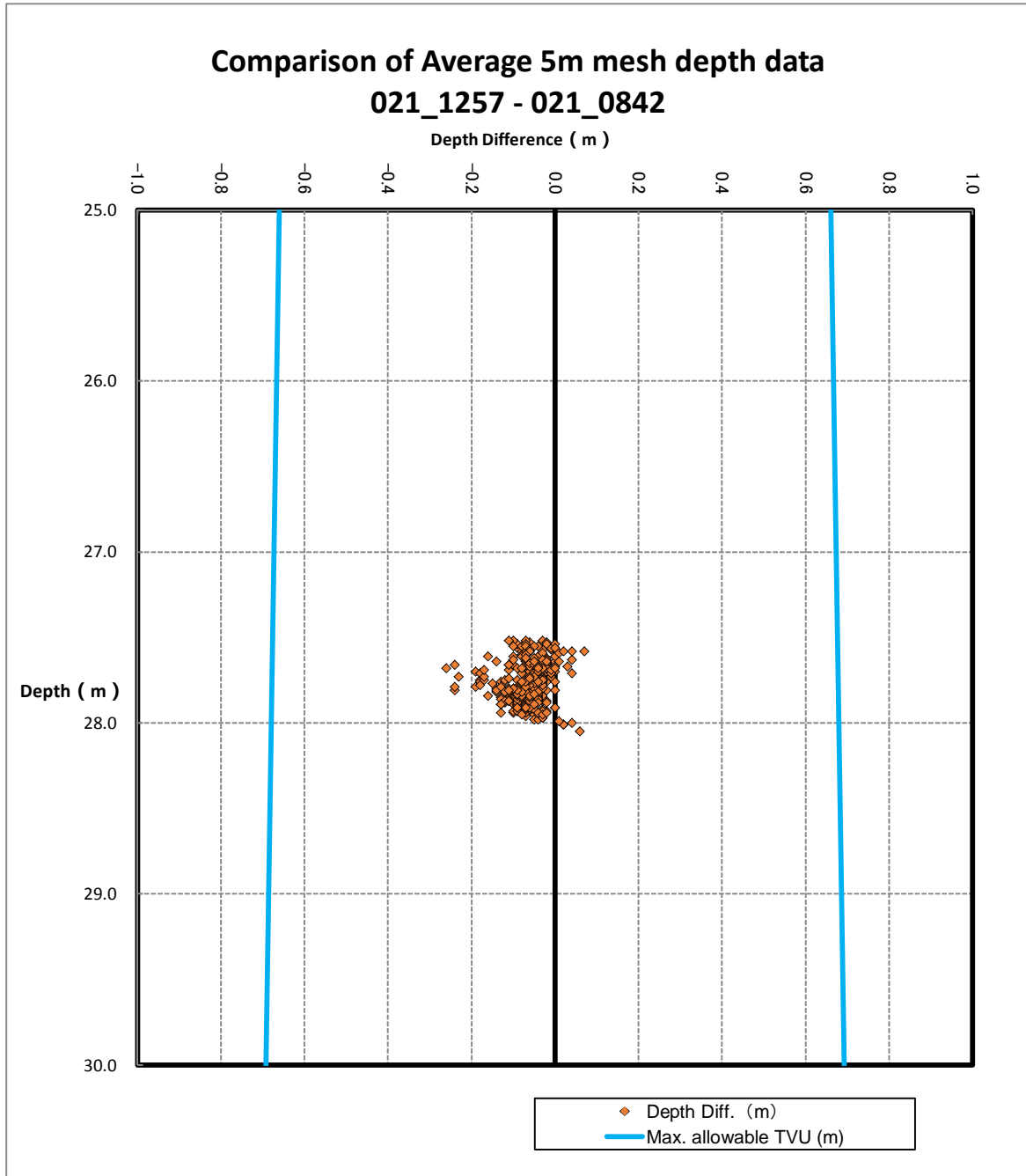


Multi-beam Echosounder Data Inspection

No.I22

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 021\_1257  
 021\_0842  
 Number of data 354

Number of valid data : 354 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.06 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth





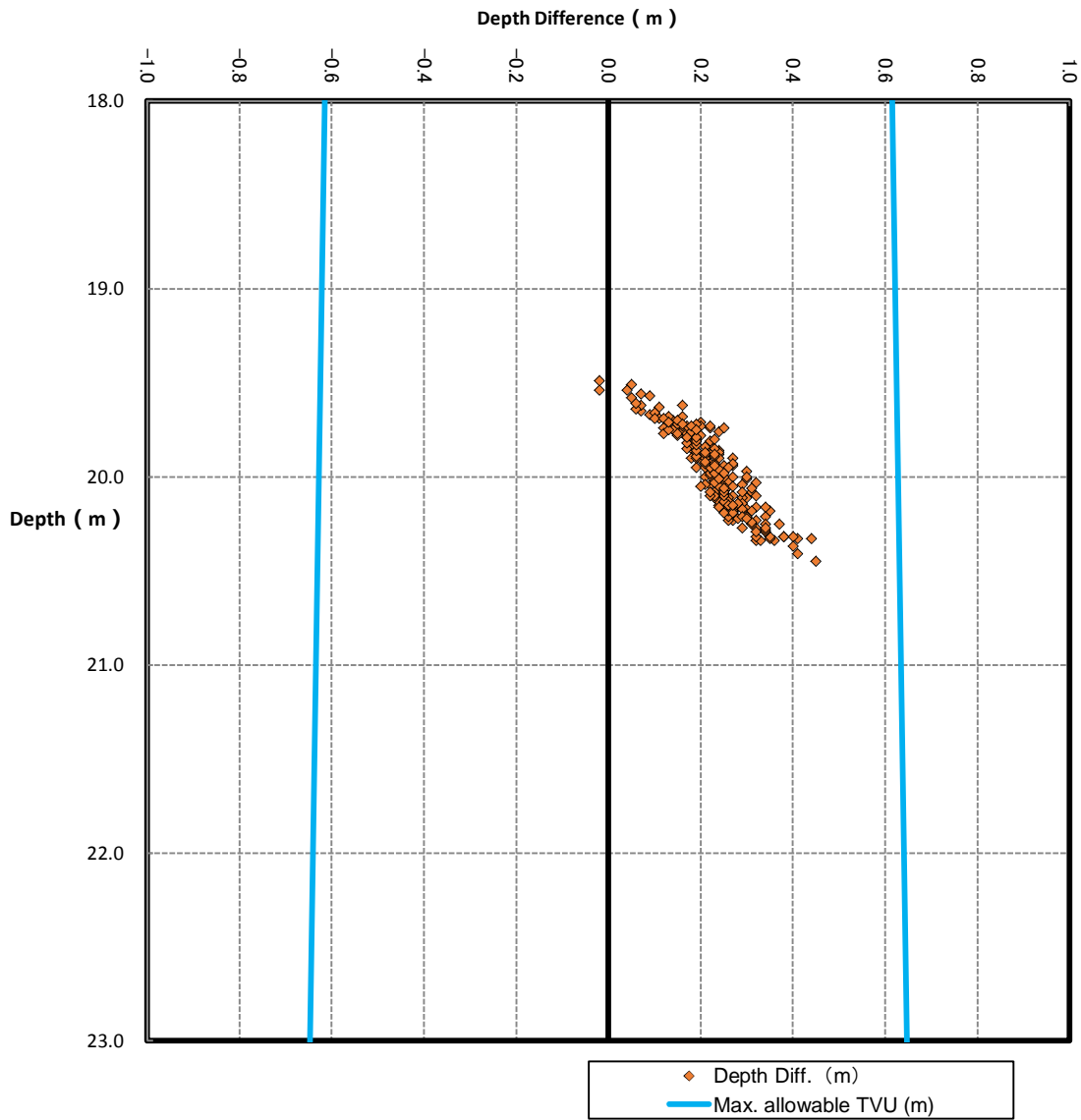
Multi-beam Echosounder Data Inspection

No.I23

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW9  
 S22\_0008  
 Number of data 218

Number of valid data : 218 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.23 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 EW9 - S22\_0008

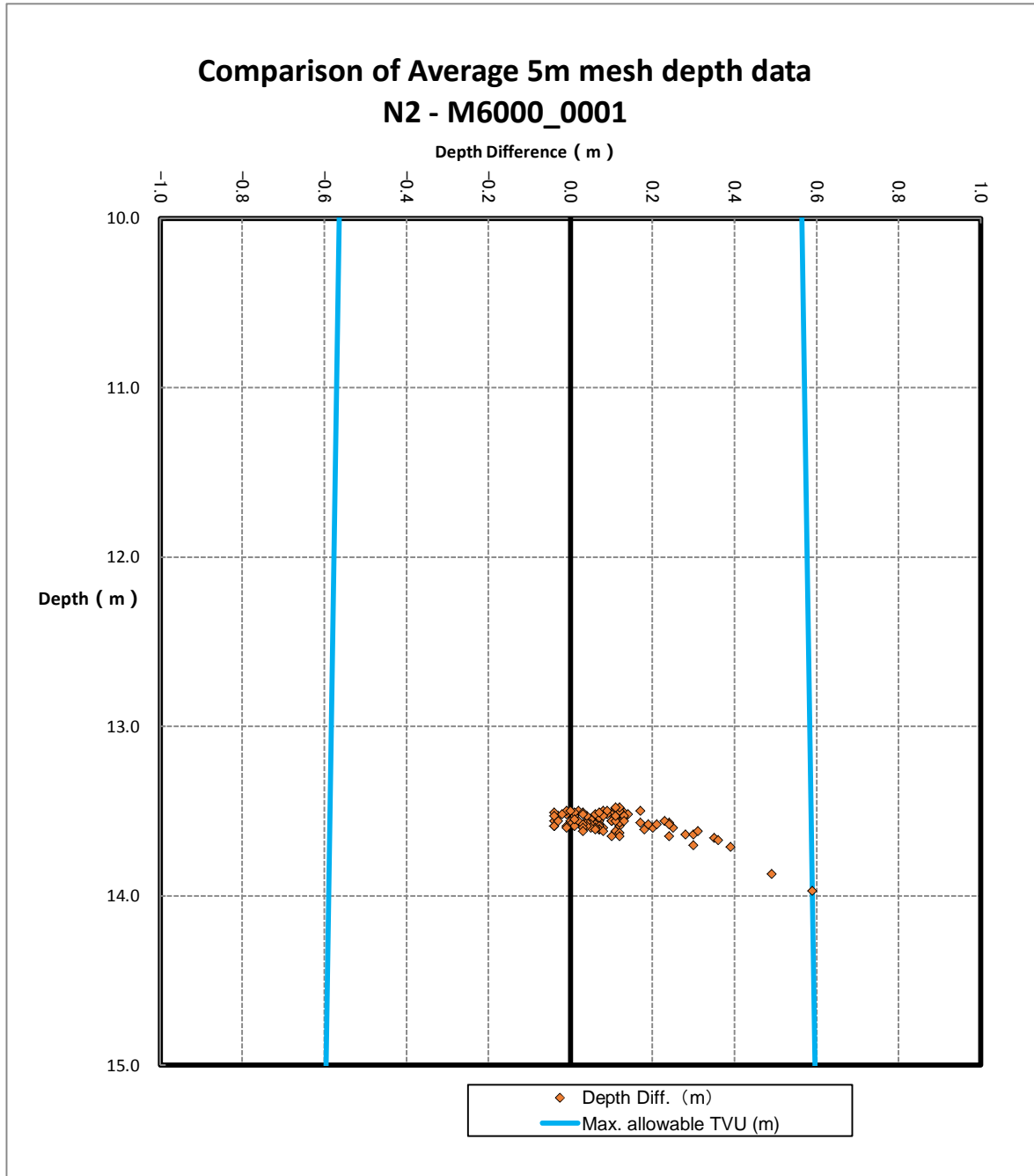


Multi-beam Echosounder Data Inspection

No.I24

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : N2  
 M6000\_0001  
 Number of data 95

Number of valid data : 94 98.95%  
 Number of invalid data : 1 1.05%  
 Mean Difference : 0.10 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



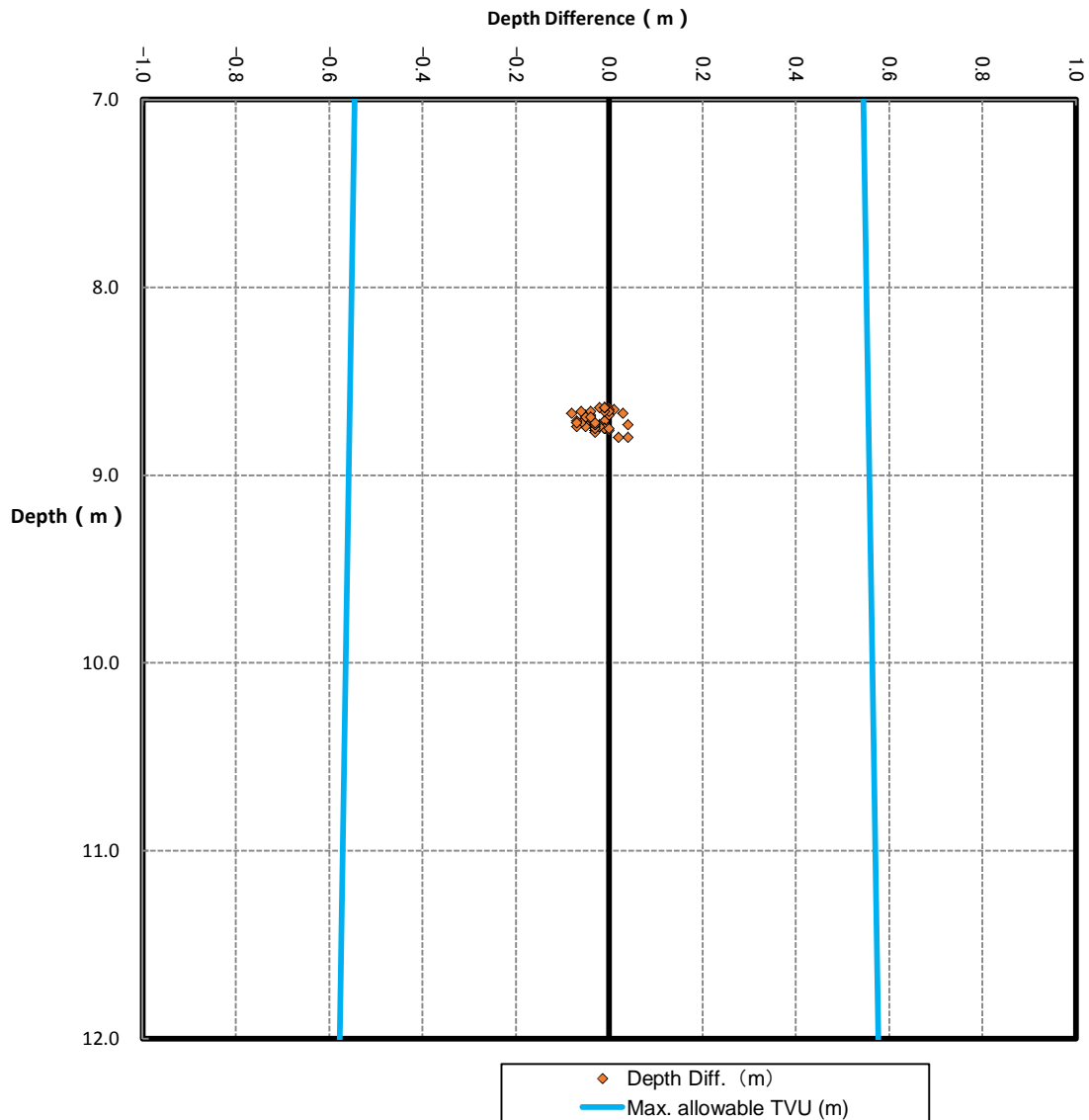
Multi-beam Echosounder Data Inspection

No.I25

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_1308  
 EW15\_0001  
 Number of data 48

Number of valid data : 48 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.02 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 000\_1308 - EW15\_0001



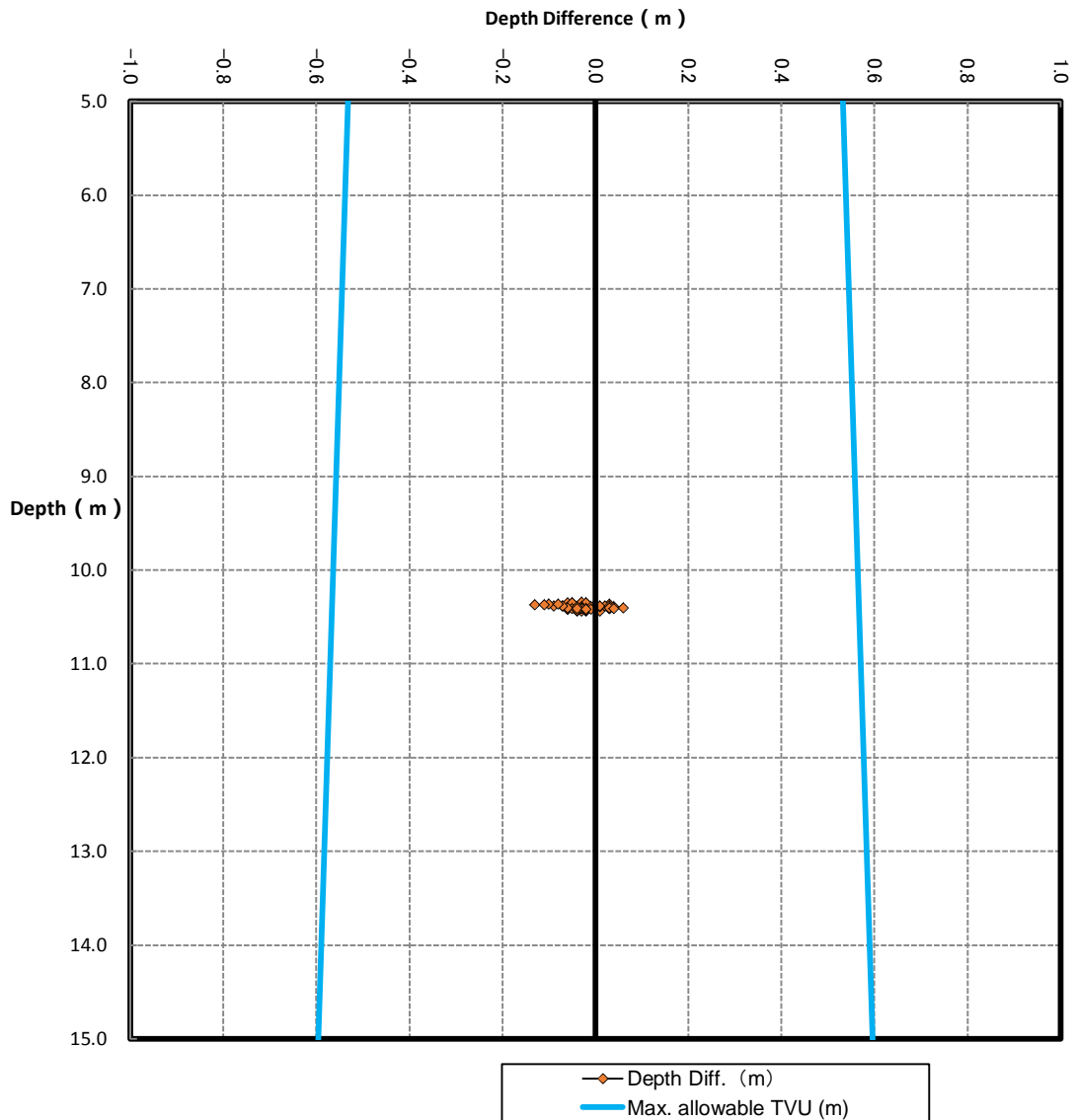
Multi-beam Echosounder Data Inspection

No.I26

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_1308  
 008\_1005  
 Number of data 64

Number of valid data: 64 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: -0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 000\_1308 - 008\_1005

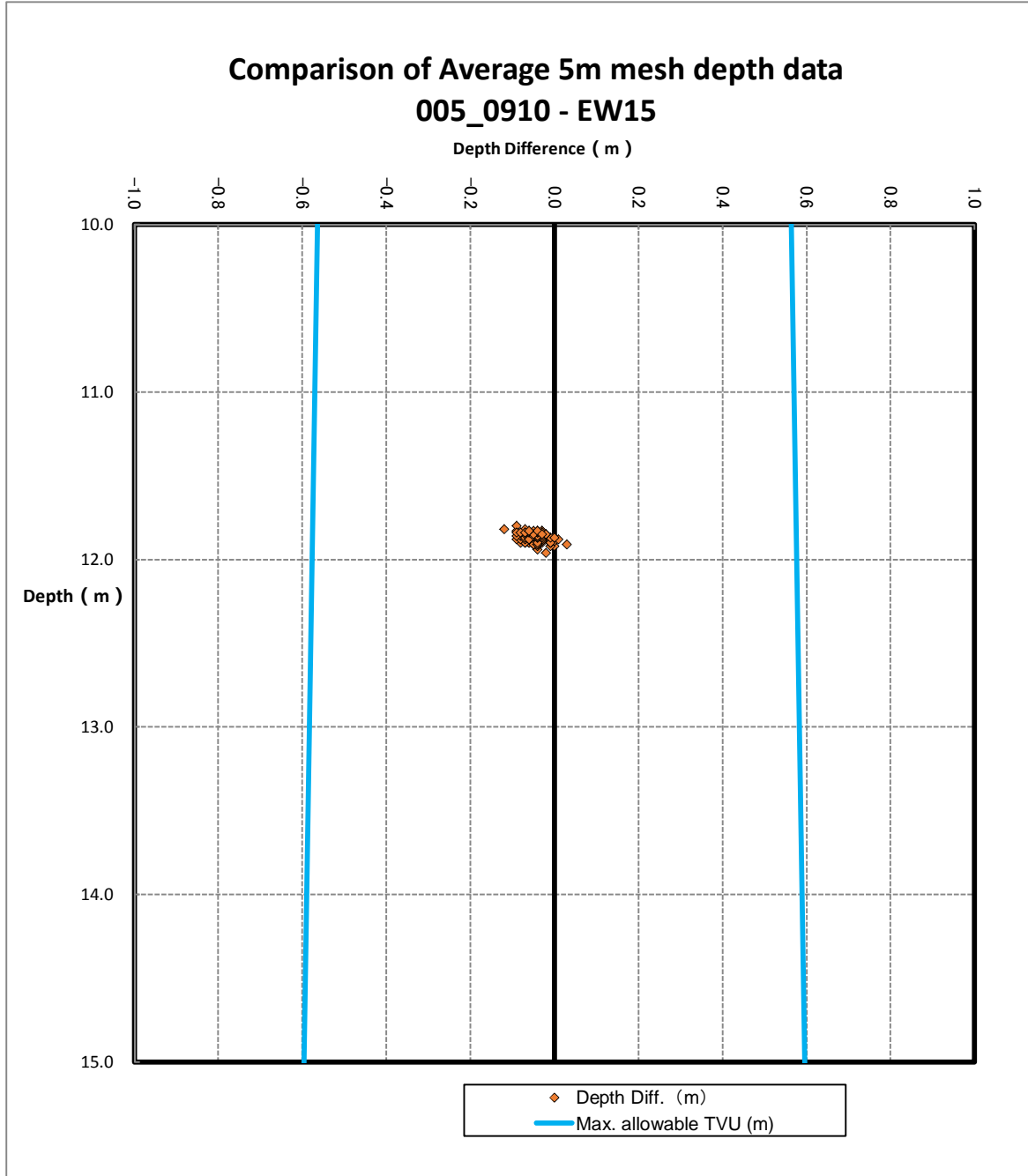


Multi-beam Echosounder Data Inspection

No.I27

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 005\_0910  
 EW15  
 Number of data 103

Number of valid data : 103 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.05 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



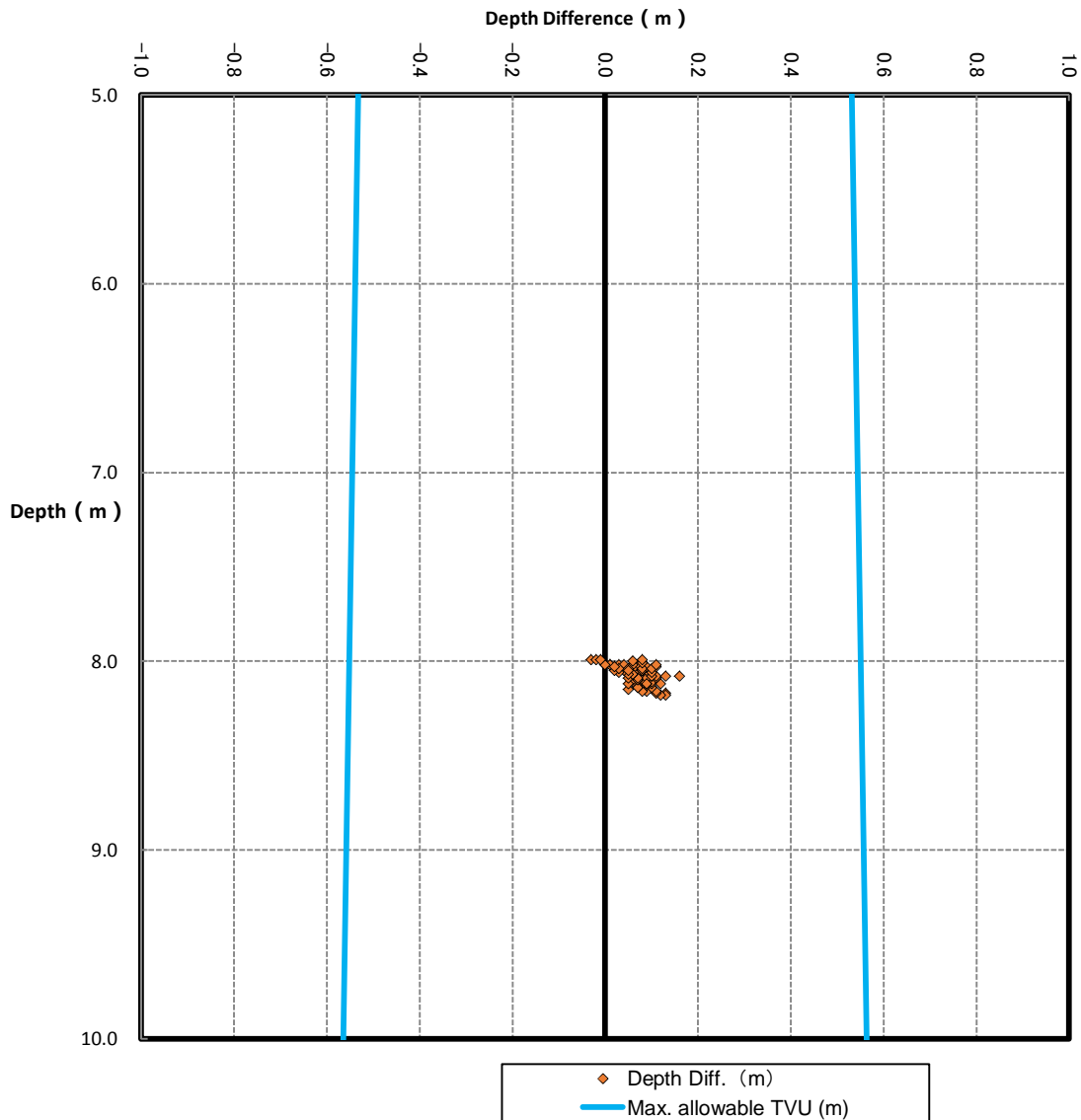
Multi-beam Echosounder Data Inspection

No.I28

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_0839  
 EW20\_0001  
 Number of data 88

Number of valid data : 88 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.07 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 000\_0839 - E20\_0001



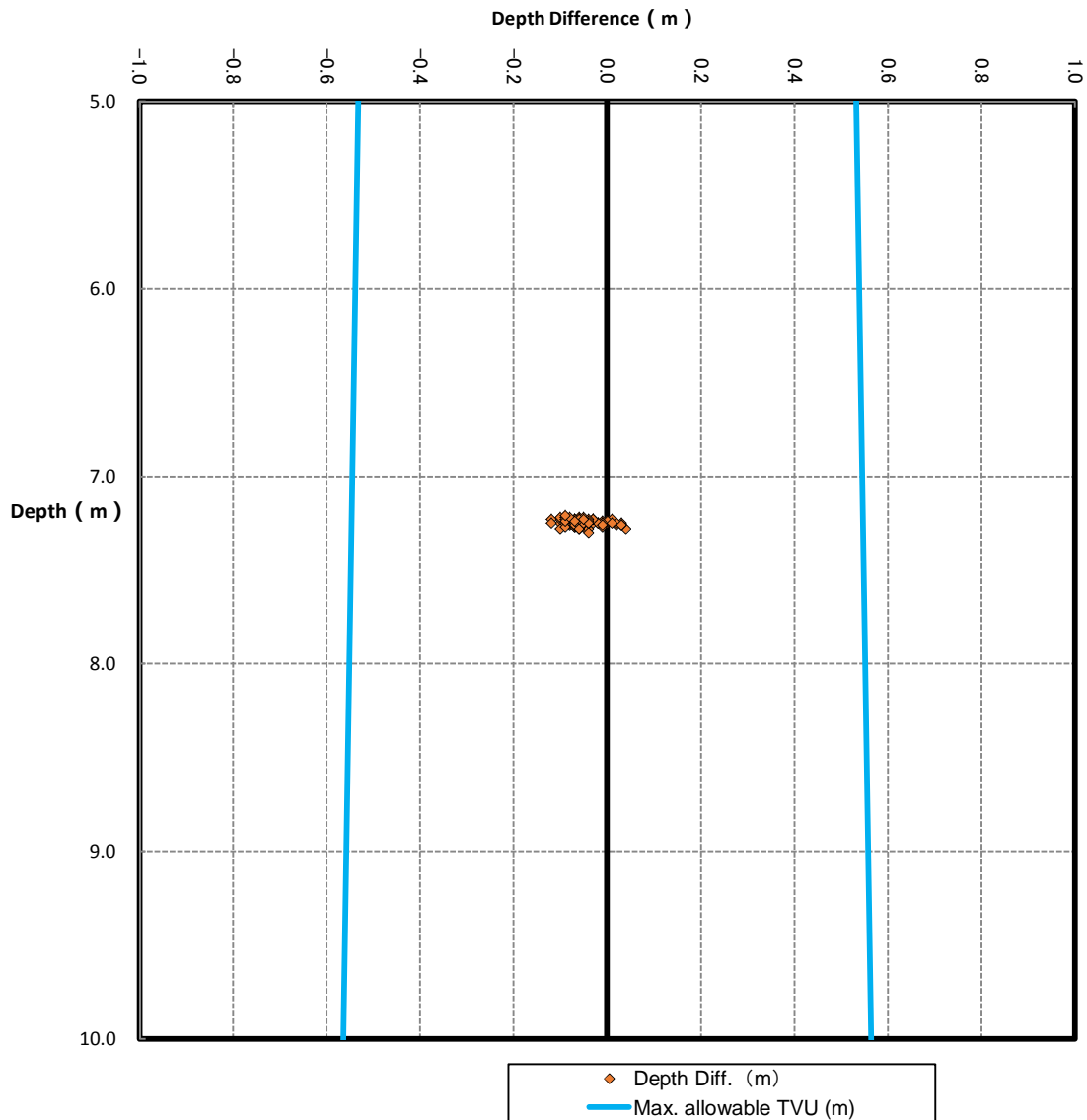
Multi-beam Echosounder Data Inspection

No.I29

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 000\_0915  
 014\_1250  
 Number of data 79

Number of valid data : 79 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.05 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 000\_0915 - 014\_1250



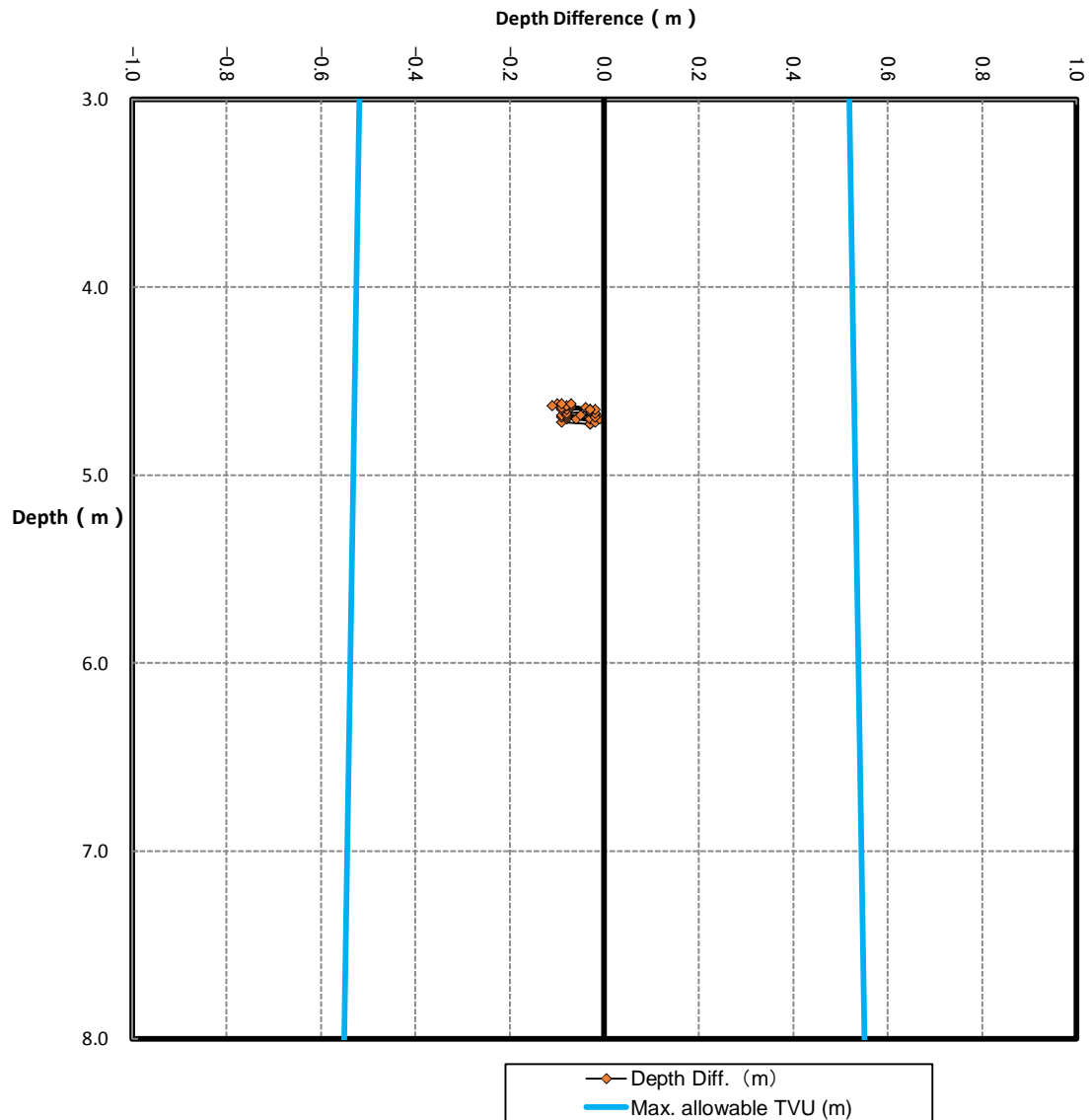
Multi-beam Echosounder Data Inspection

No.I30

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW24  
 EW20\_0003  
 Number of data 31

Number of valid data : 31 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.06 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 EW24 - EW20\_0003





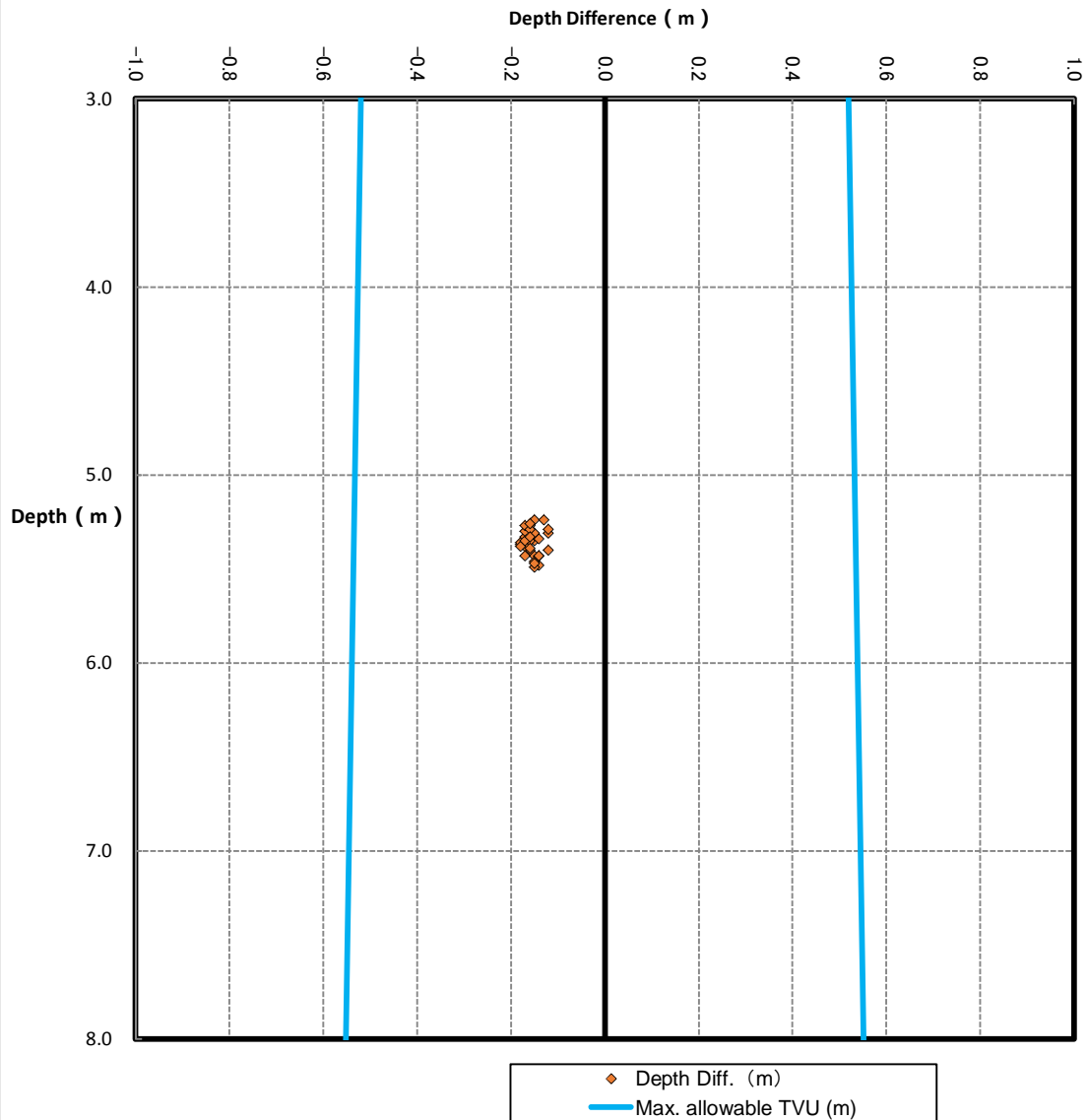
Multi-beam Echosounder Data Inspection

No.I31

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW24  
 017\_1348  
 Number of data 34

Number of valid data : 34 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.15 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 EW24 - 017\_1348



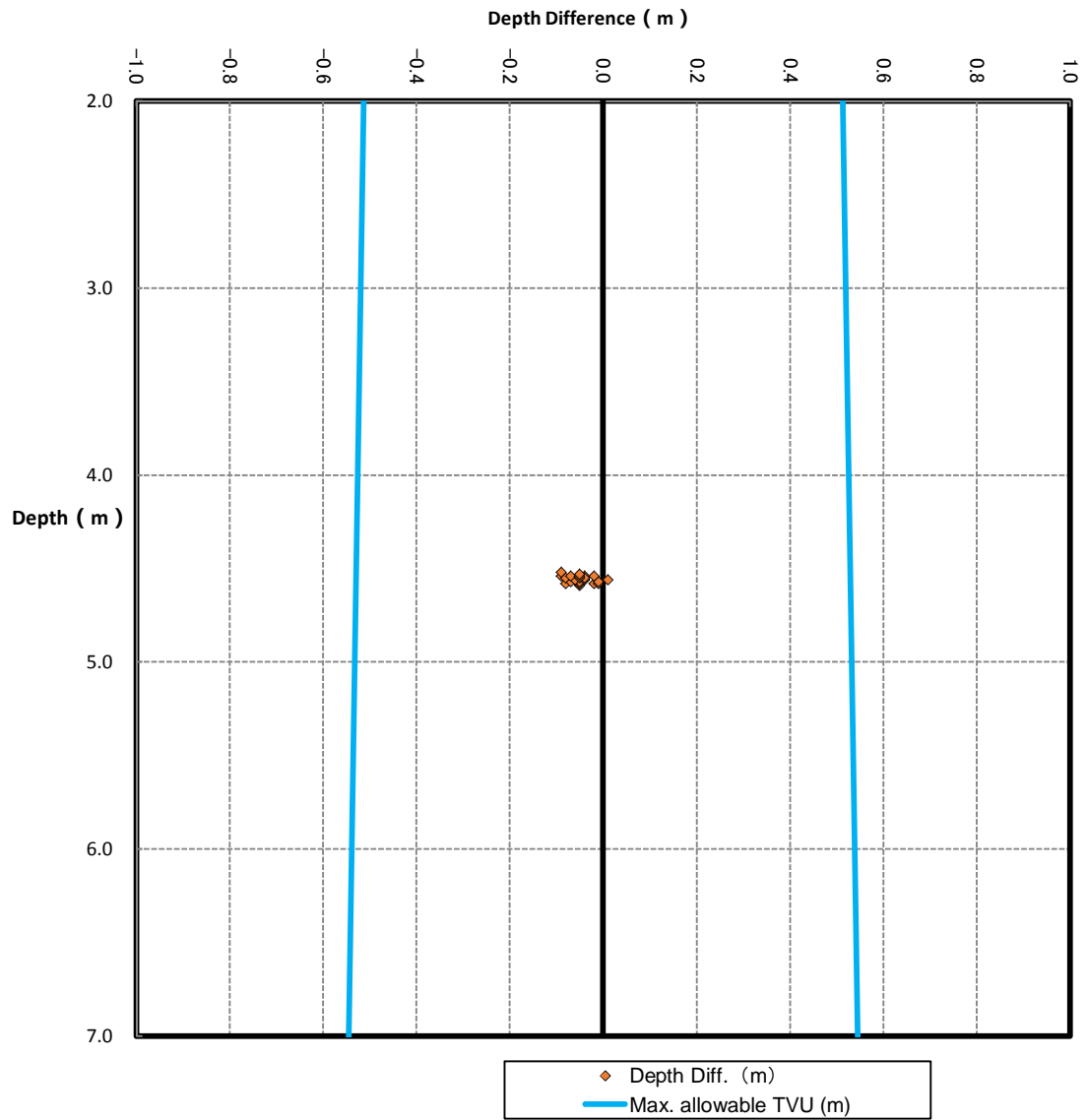
Multi-beam Echosounder Data Inspection

No.I32

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW24  
 EW20\_0002  
 Number of data 25

Number of valid data : 25 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.05 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 EW24 - EW20\_0002



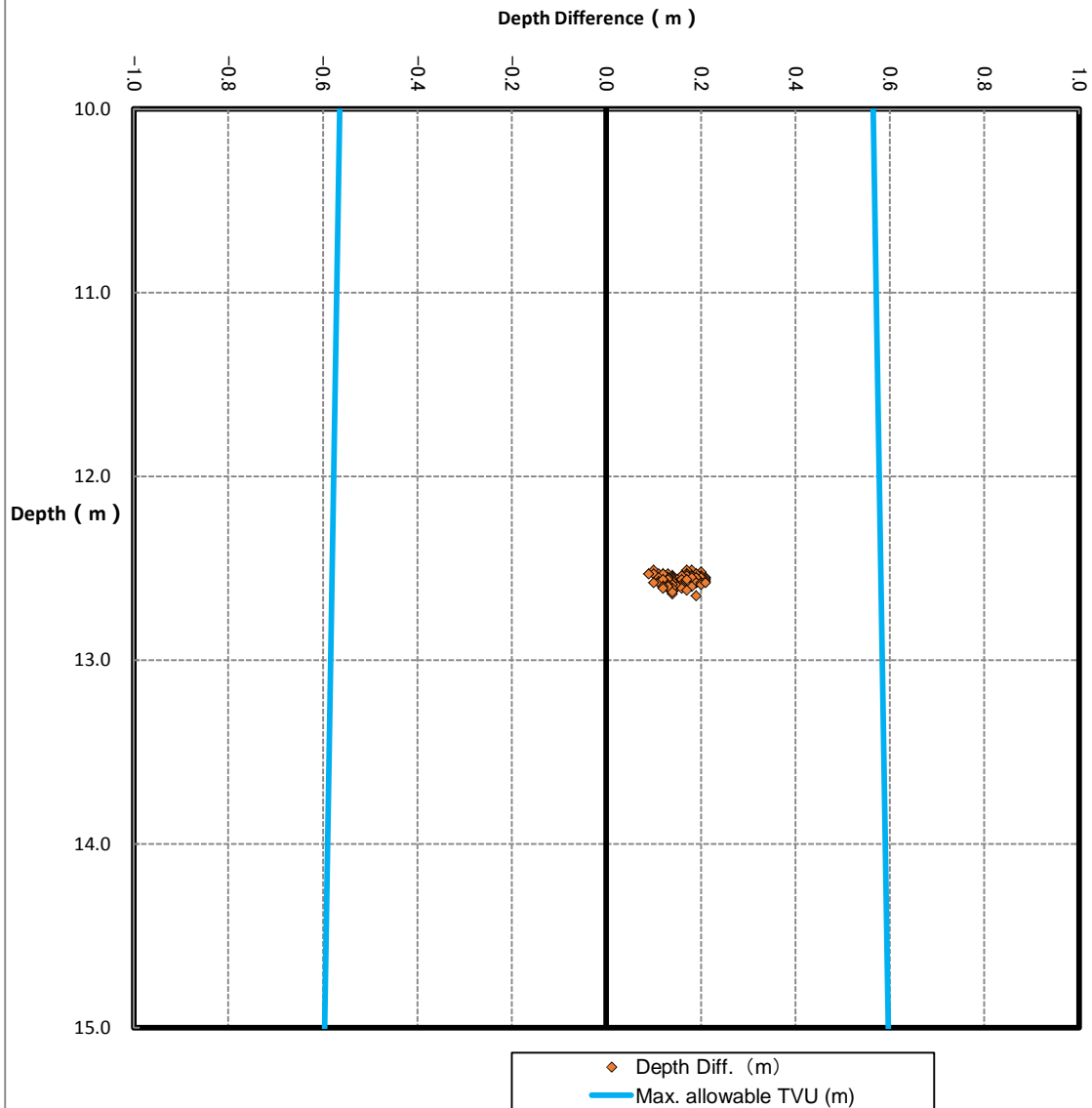
Multi-beam Echosounder Data Inspection

No.I33

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW8\_0009  
 016\_1624  
 Number of data 91

Number of valid data: 91 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: 0.16 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 EW08 - \_0009 016\_1624

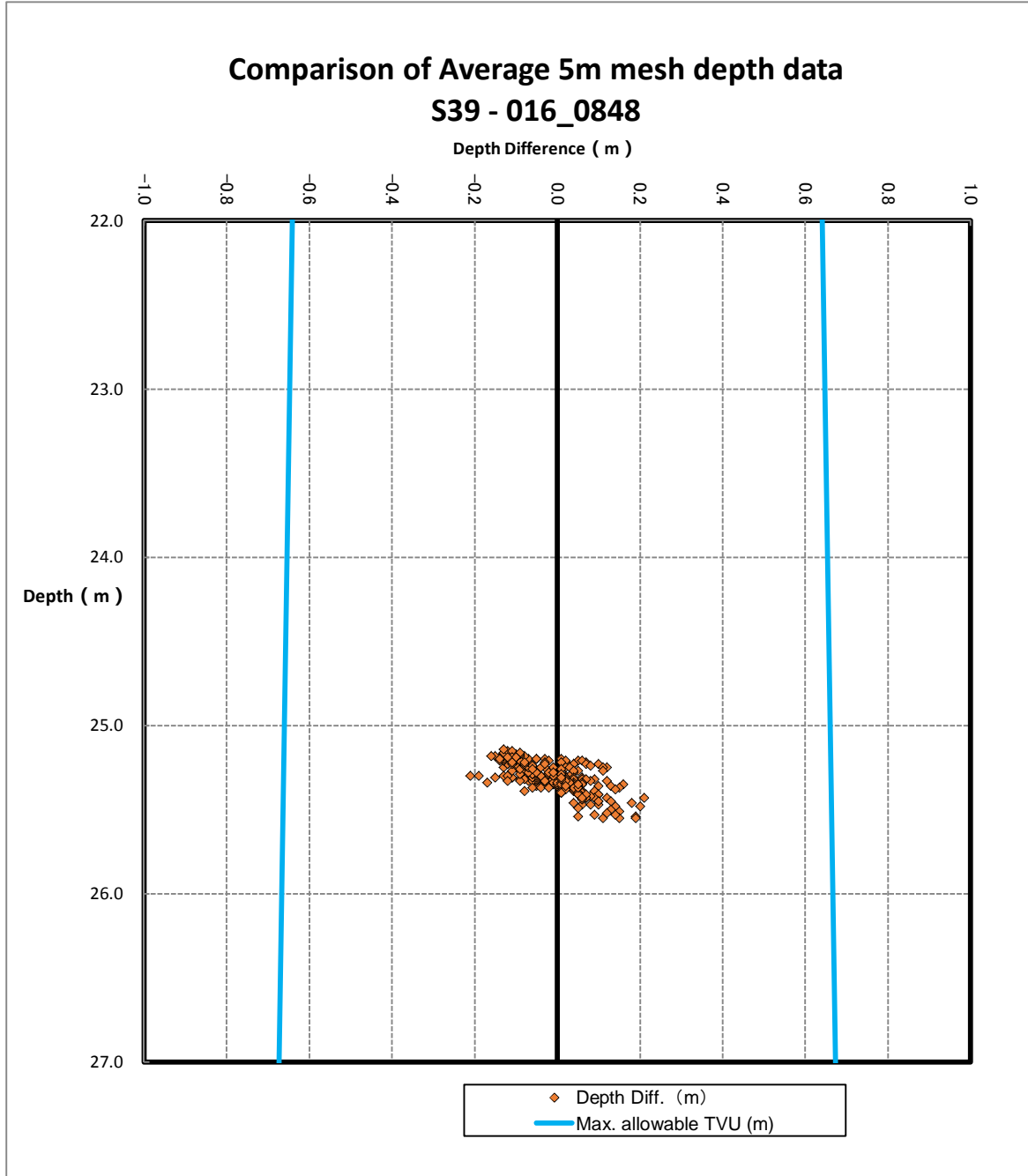


Multi-beam Echosounder Data Inspection

No.I34

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S39  
 016\_0848  
 Number of data 301

Number of valid data : 301 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.01 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

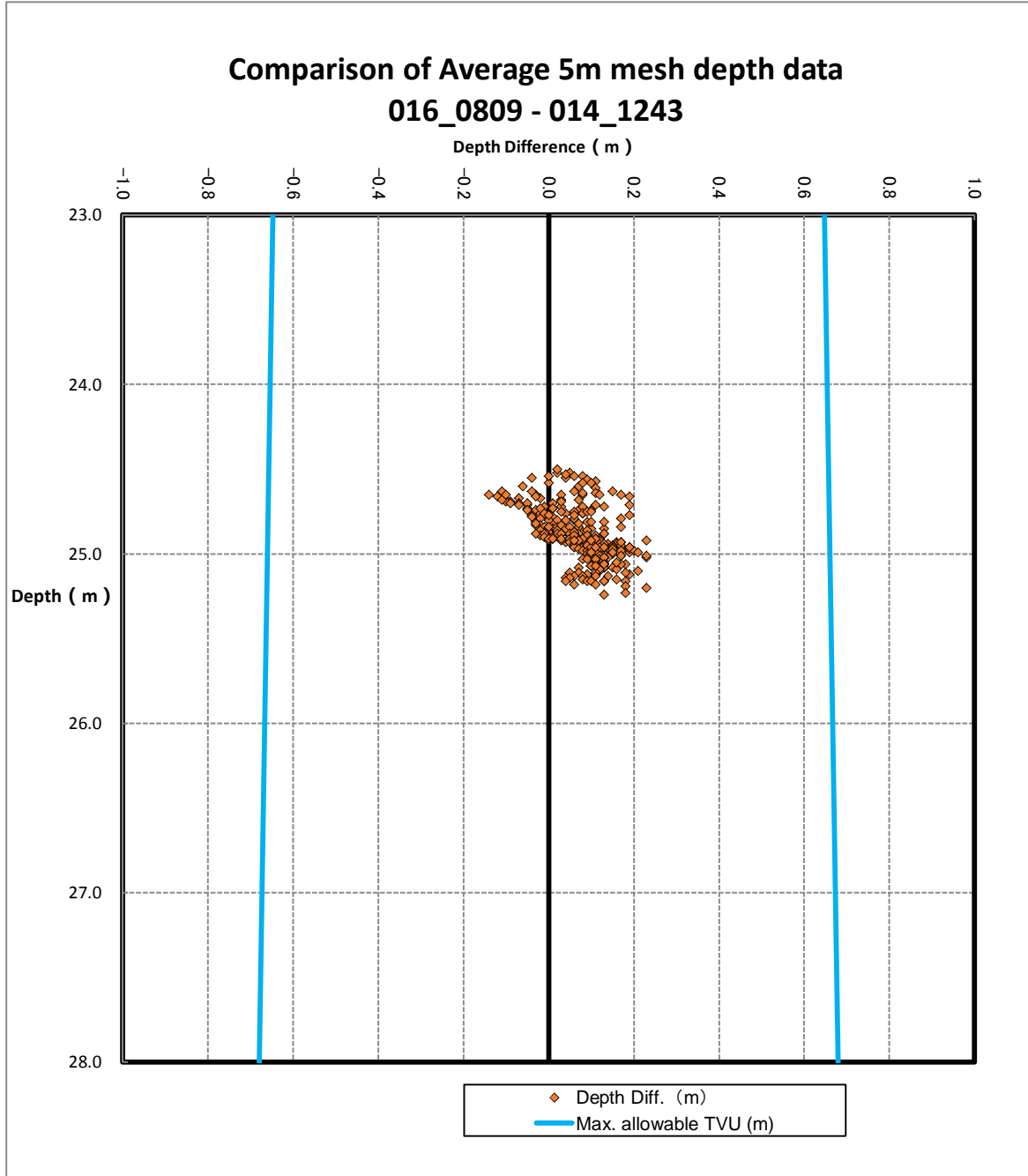


Multi-beam Echosounder Data Inspection

No.I35

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 016\_0809  
 014\_1243  
 Number of data 307

Number of valid data: 307 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: 0.07 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

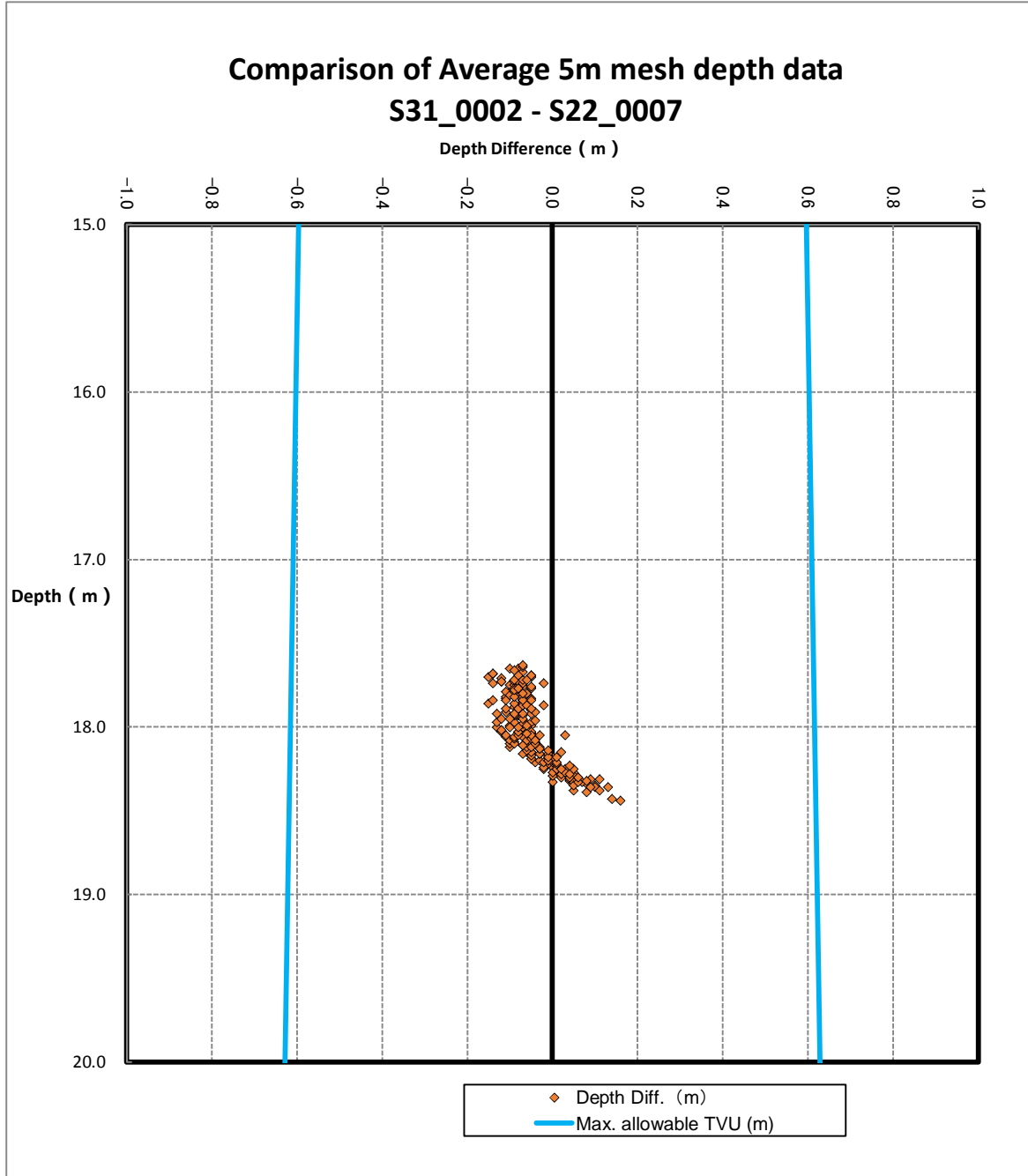


Multi-beam Echosounder Data Inspection

No.I36

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S31\_0002  
 S22\_0007  
 Number of data 205

Number of valid data : 205 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.04 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



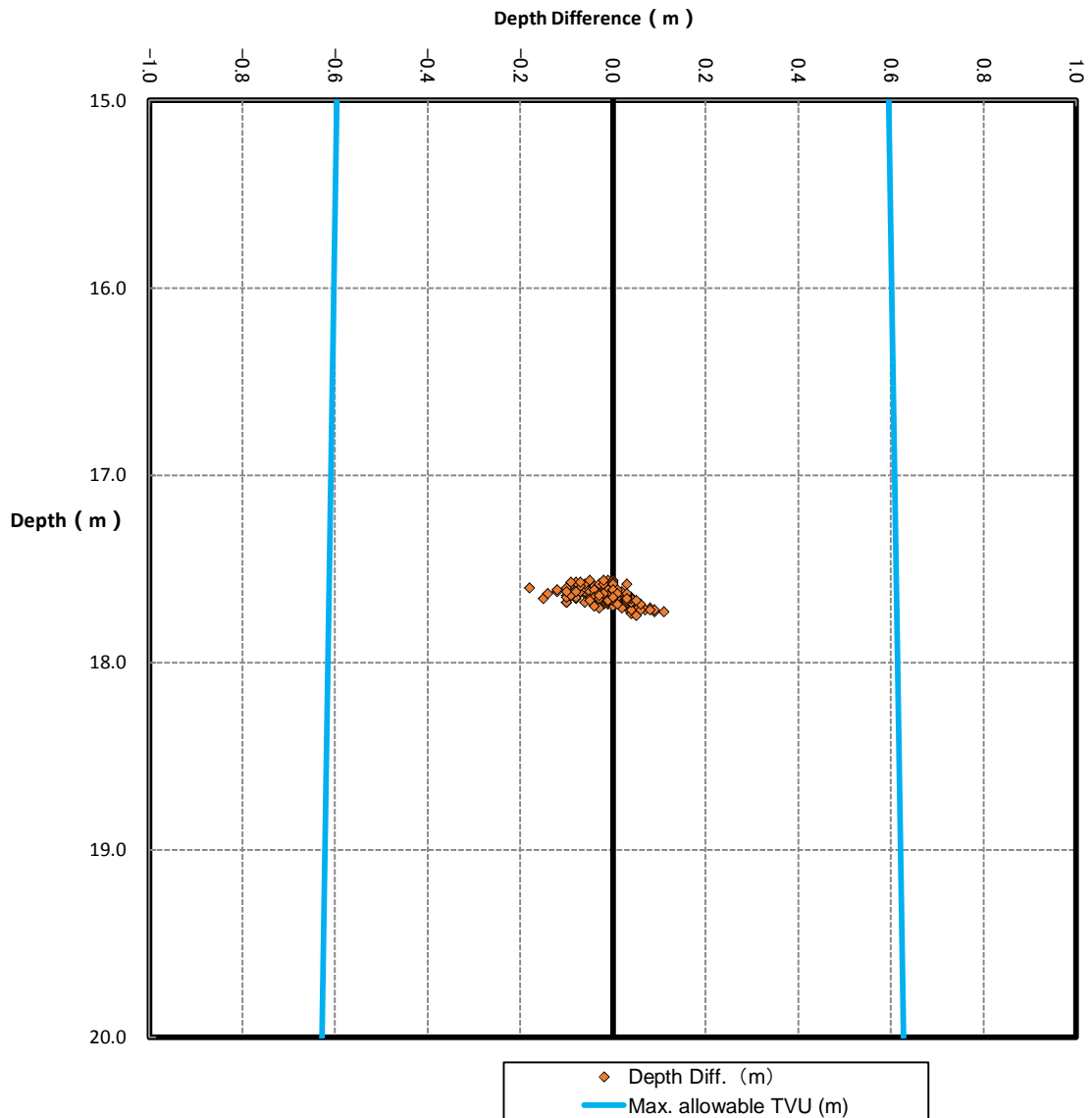
Multi-beam Echosounder Data Inspection

No.I37

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : EW13\_0004  
 S24\_0002  
 Number of data 167

Number of valid data : 167 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.02 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 EW13\_0004 - S24\_0002

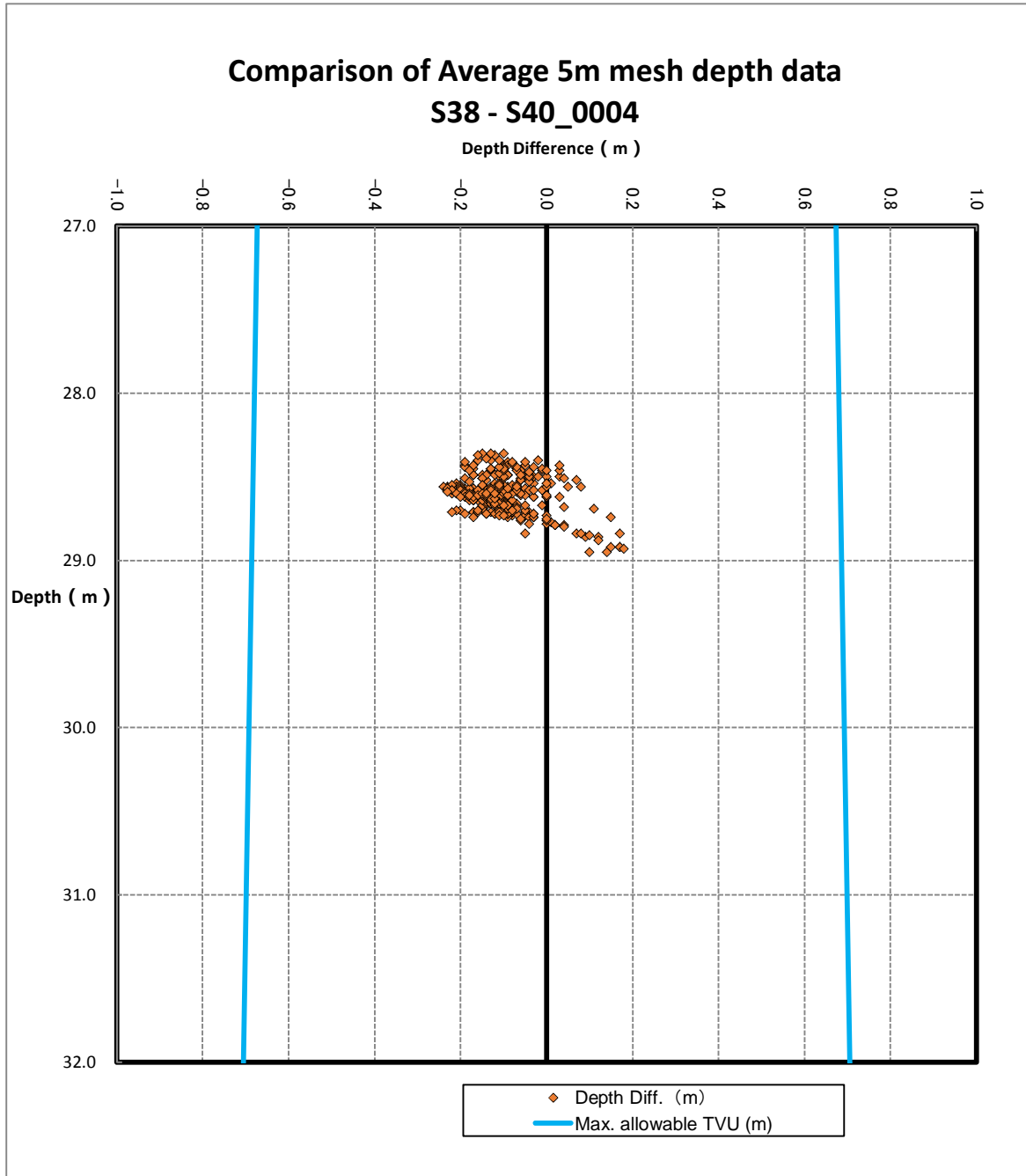


Multi-beam Echosounder Data Inspection

No.I38

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S38  
 S40\_0004  
 Number of data 371

Number of valid data : 371 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.10 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



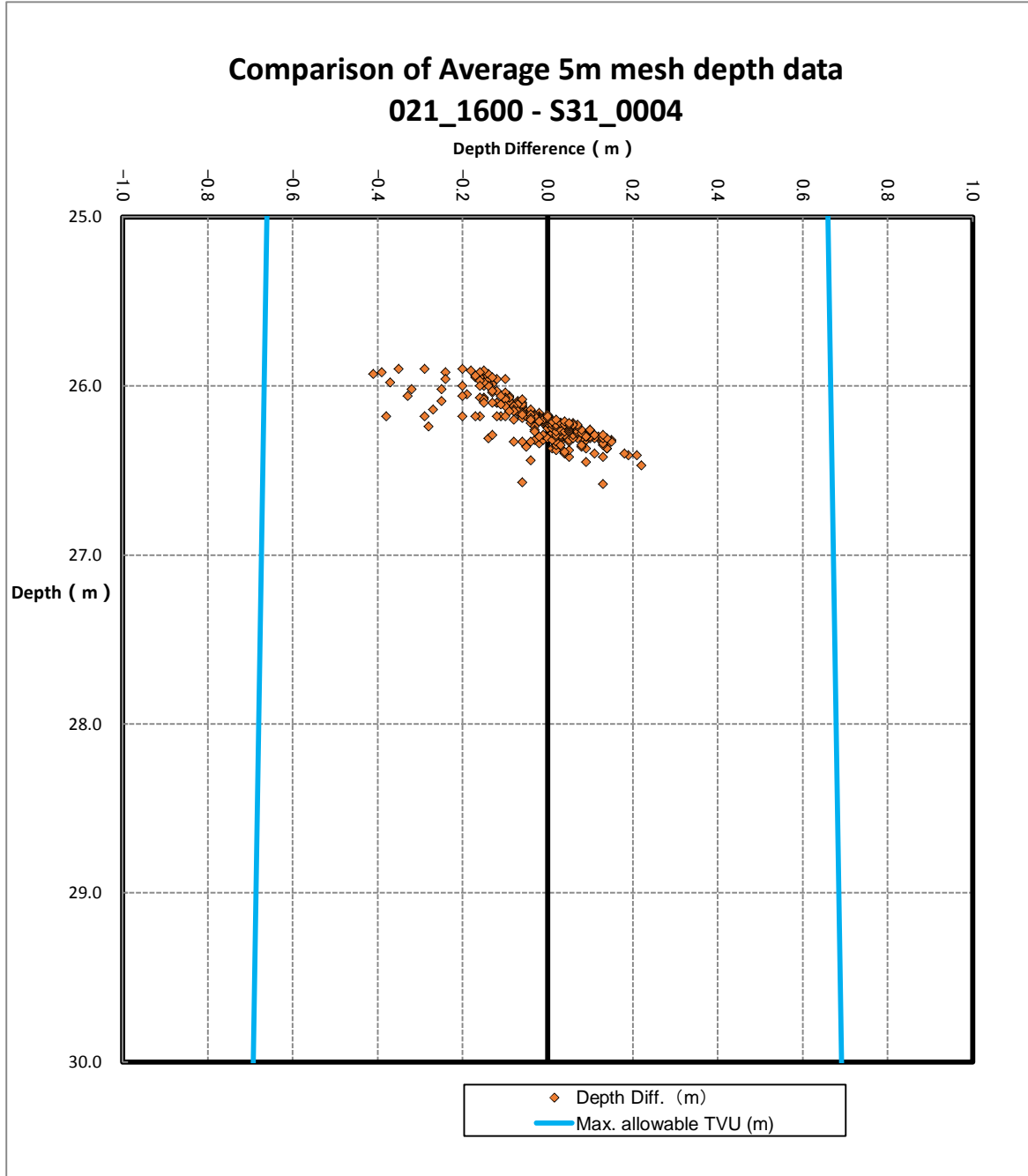


Multi-beam Echosounder Data Inspection

No.I39

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 021\_1600  
 S31\_0004  
 Number of data 299

Number of valid data : 299 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.02 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

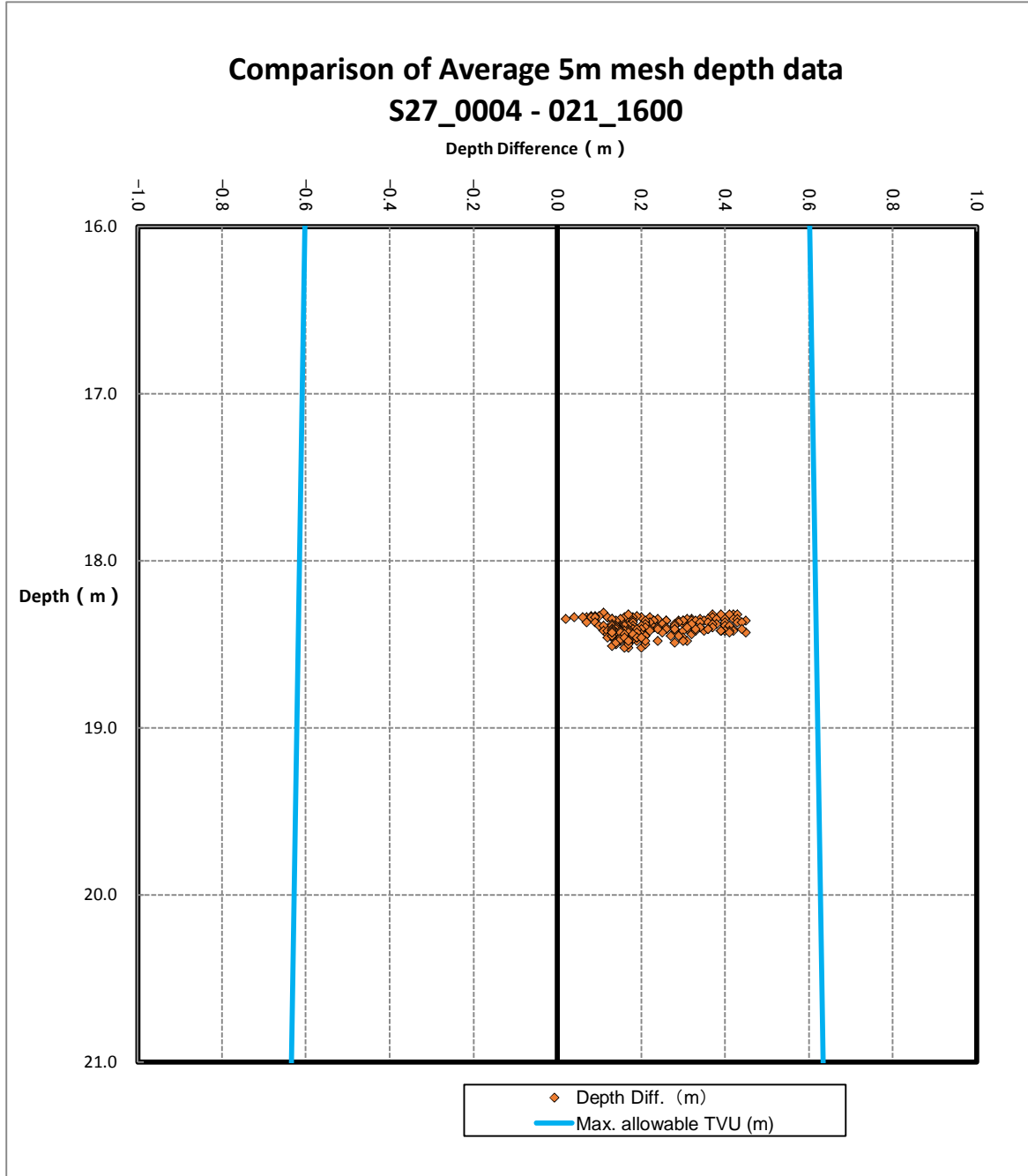


Multi-beam Echosounder Data Inspection

No.I40

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S27\_0004  
 021\_1600  
 Number of data 197

Number of valid data : 197 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.23 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

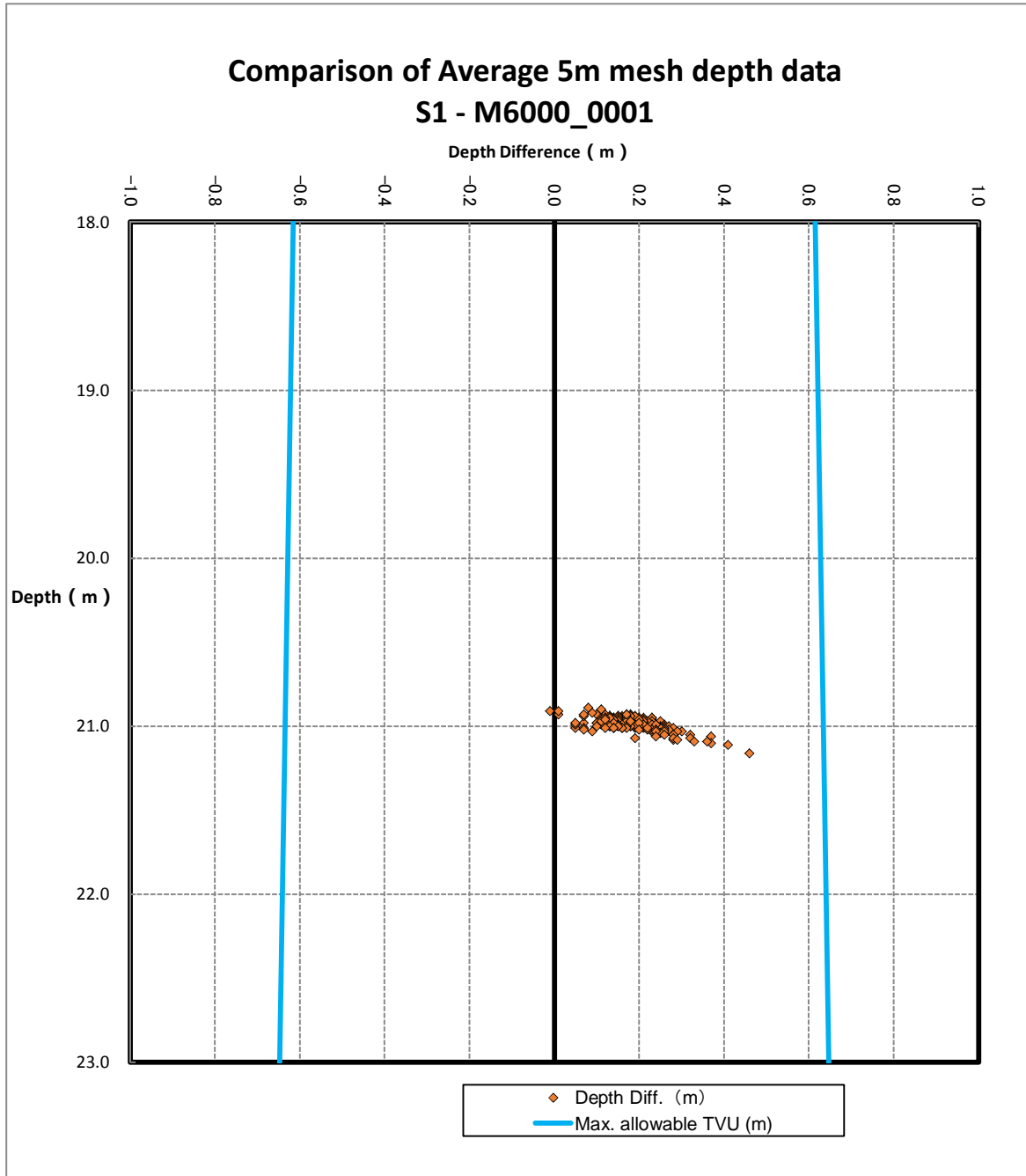


Multi-beam Echosounder Data Inspection

No.I41

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S1  
 M6000\_0001  
 Number of data 228

Number of valid data : 228 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.18 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



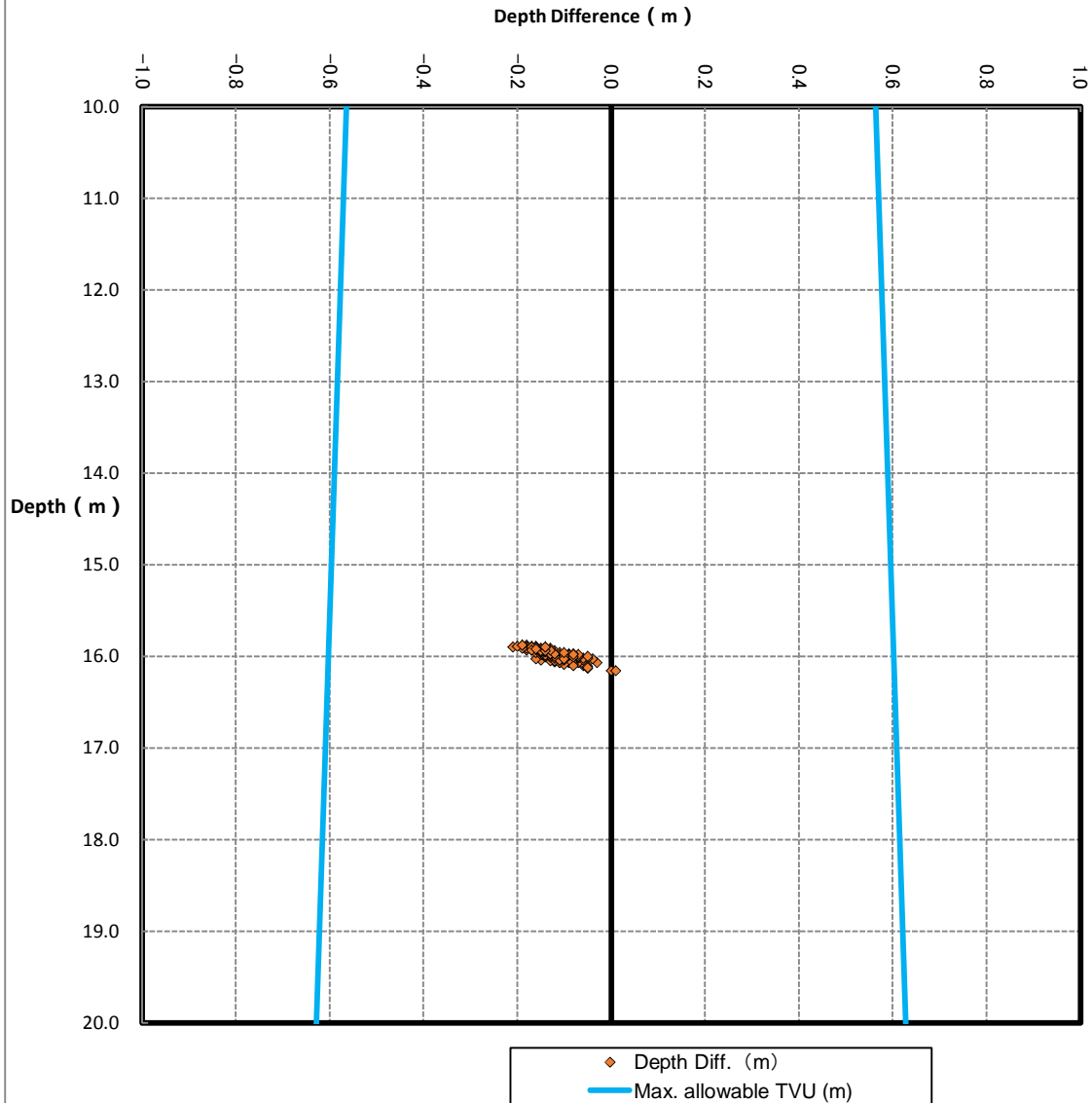
Multi-beam Echosounder Data Inspection

No.I42

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S30\_0001  
 S21  
 Number of data 130

Number of valid data : 130 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.12 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 S30\_0001 - S21

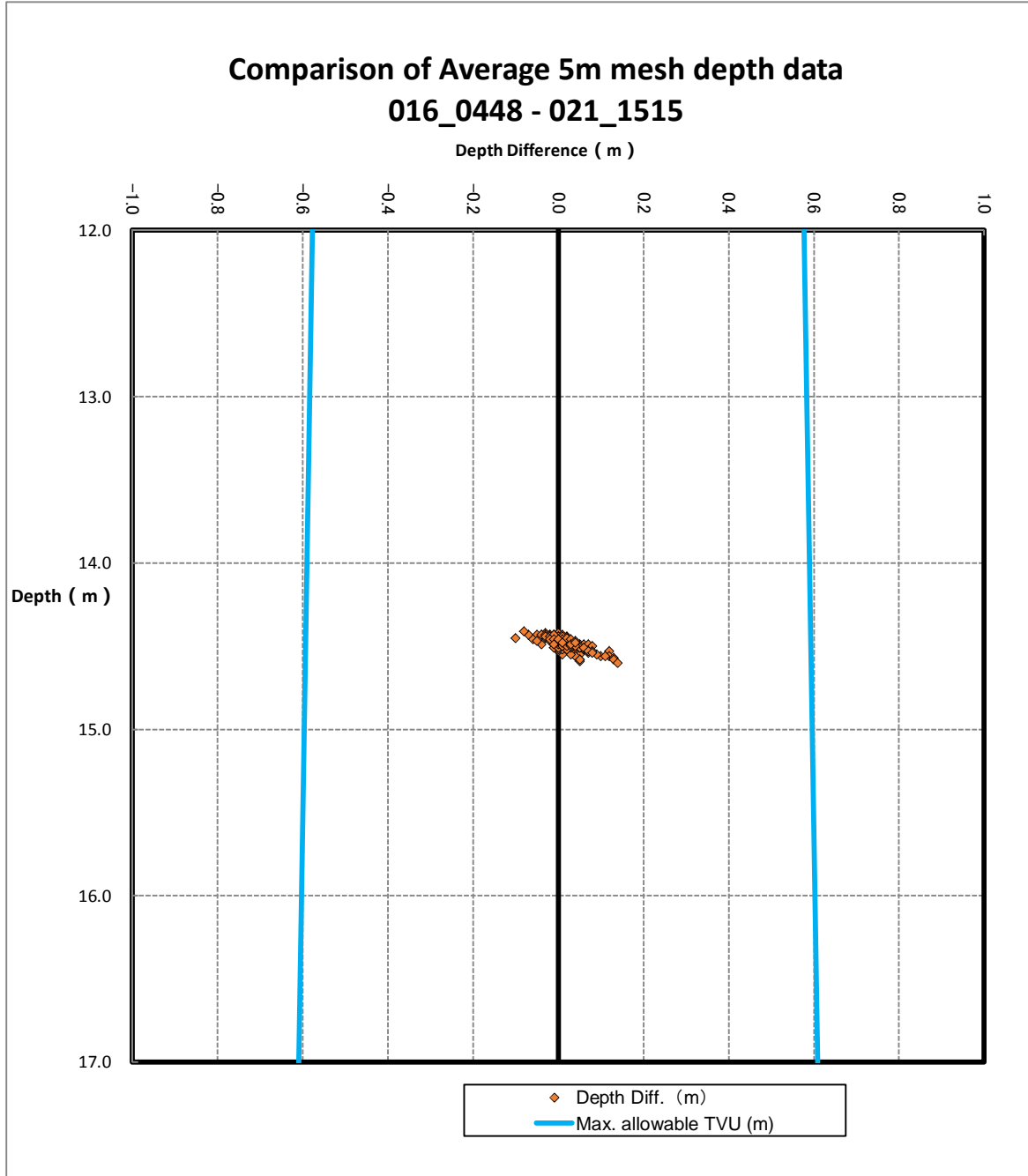


Multi-beam Echosounder Data Inspection

No.I43

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 016\_0848  
 021\_1515  
 Number of data 123

Number of valid data : 123 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.02 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



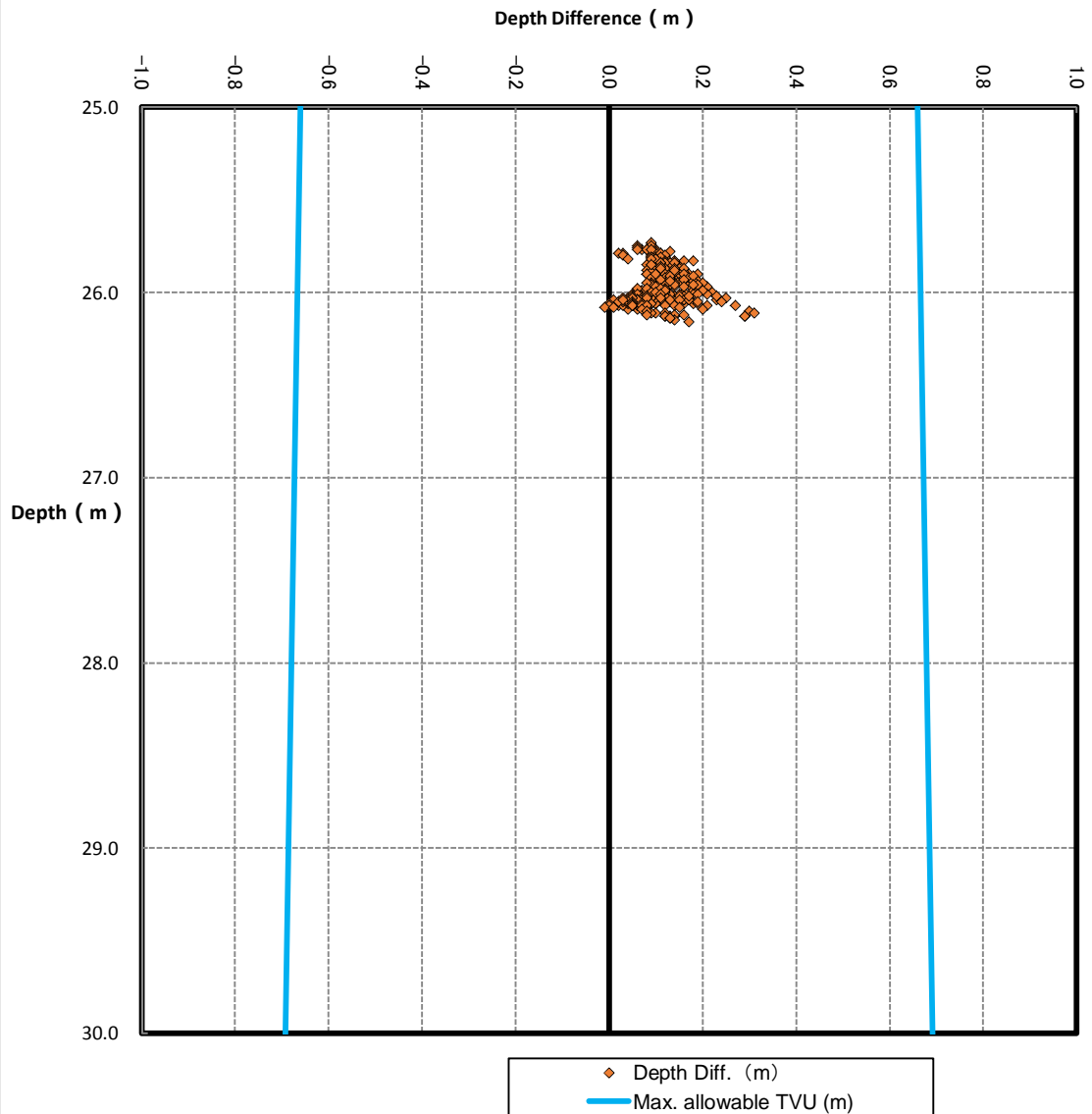
Multi-beam Echosounder Data Inspection

No.I44

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 016\_0848  
 021\_1515  
 Number of data 317

Number of valid data : 317 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.11 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

Comparison of Average 5m mesh depth data  
 016\_0848 - 021\_1515

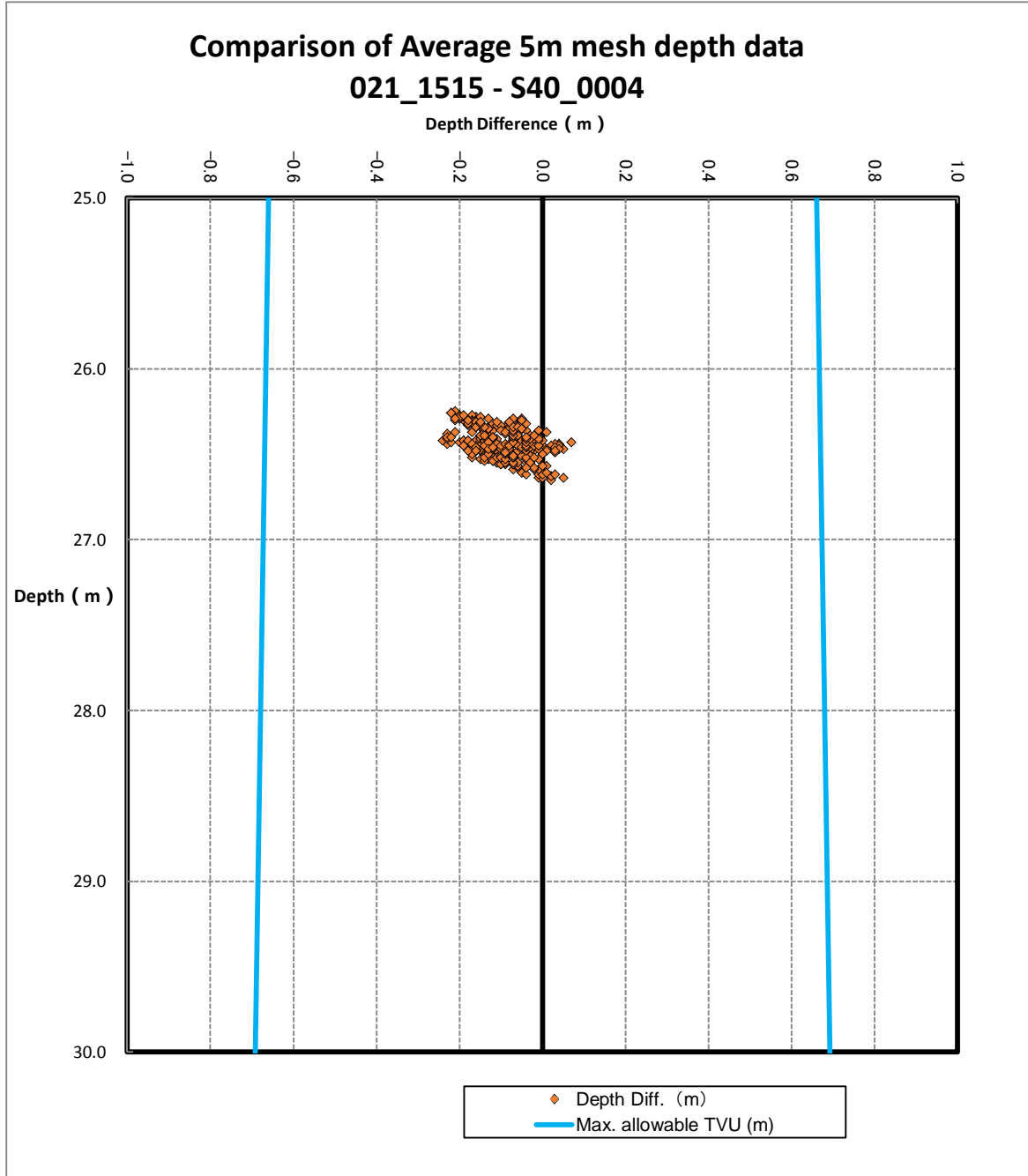


Multi-beam Echosounder Data Inspection

No.I45

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 021\_1515  
 S40\_0004  
 Number of data 334

Number of valid data : 334 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.11 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

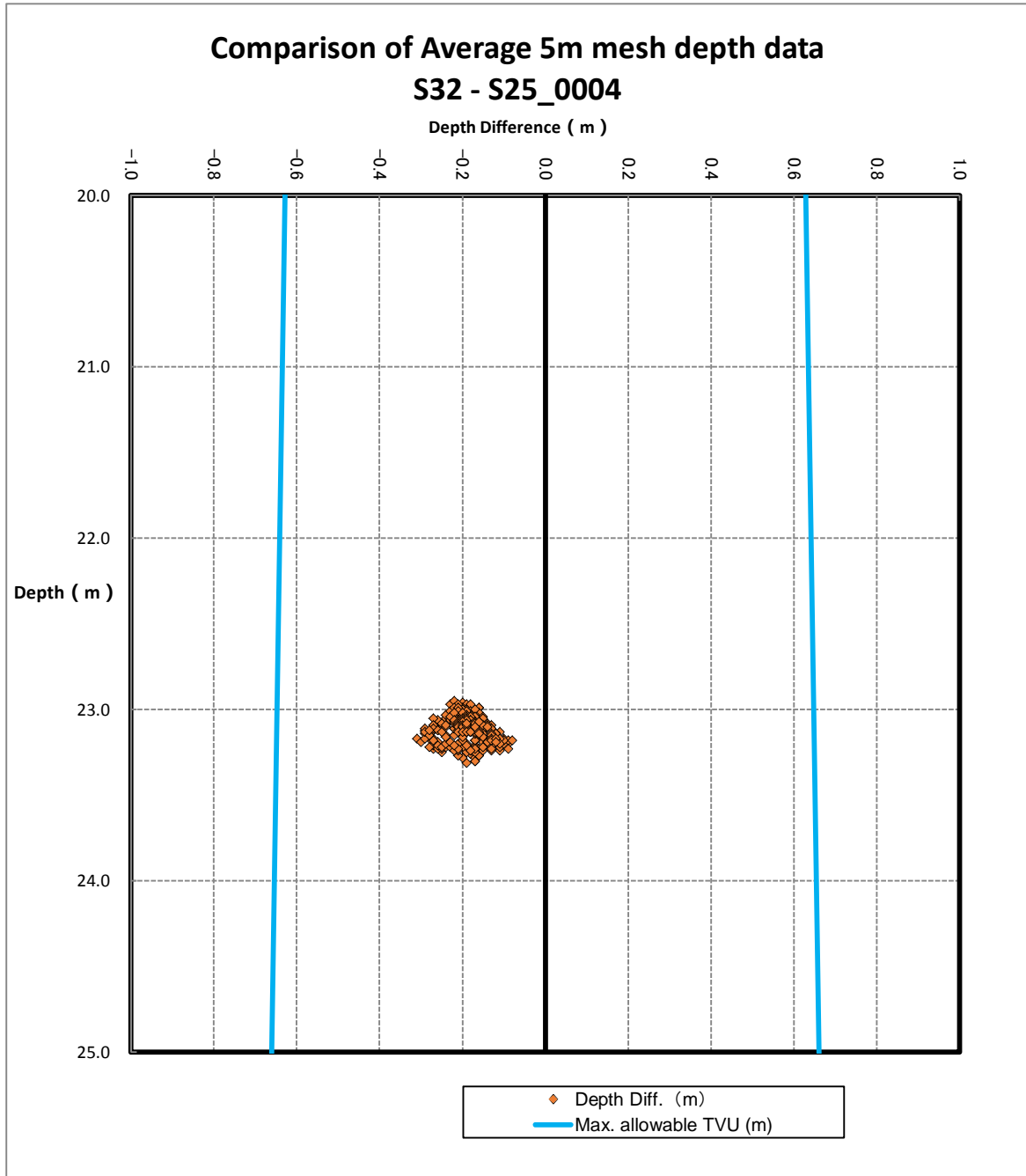


Multi-beam Echosounder Data Inspection

No.I46

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S32  
 S25\_0004  
 Number of data 286

Number of valid data : 286 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.22 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



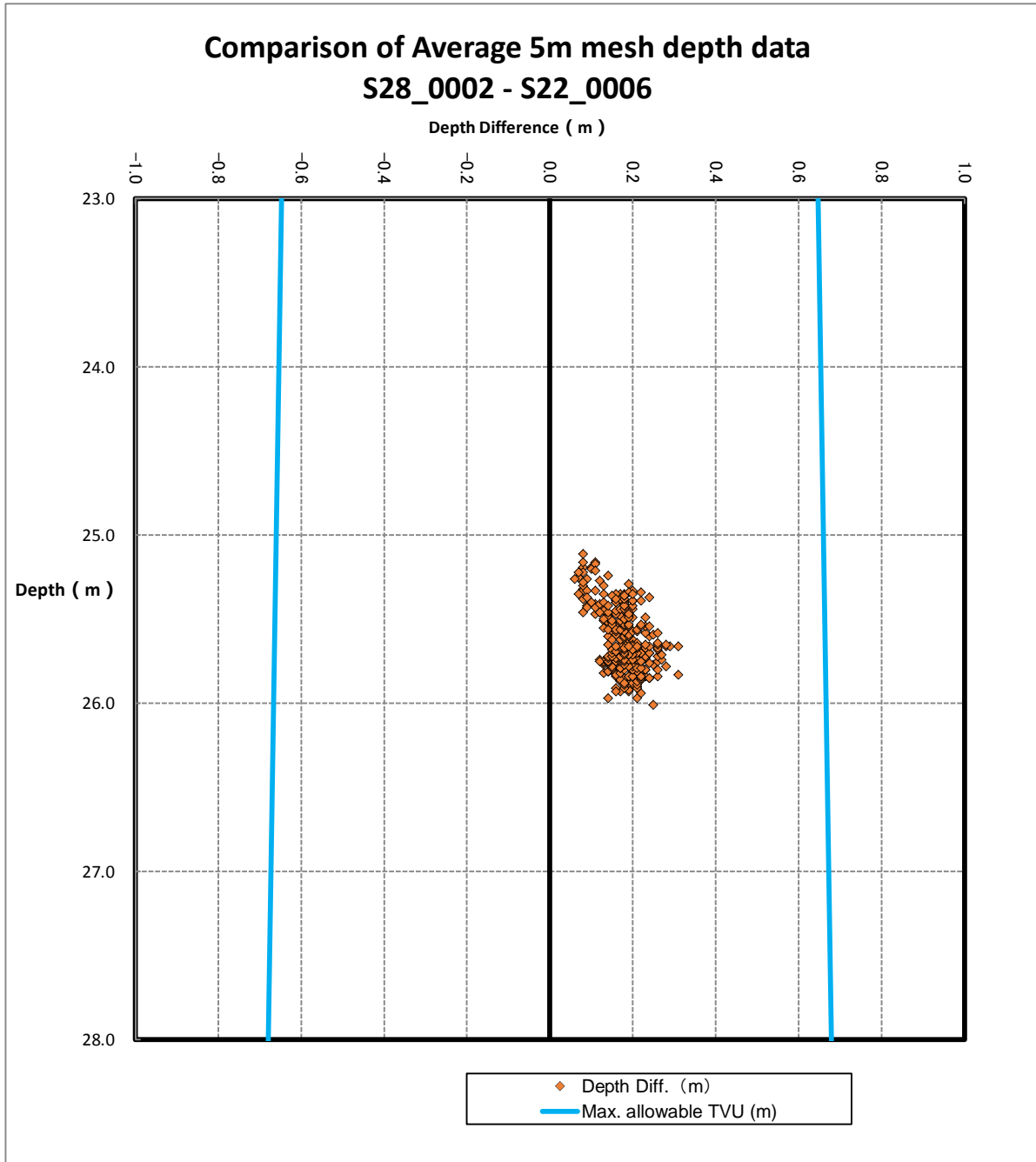


Multi-beam Echosounder Data Inspection

No.147

Area : Kampolinvalid Saom Bay Coastal and Approach  
 Order : 1a  
 Survey Line : S28\_0002  
 S22\_0006  
 Number of data 315

Number of valid data: 315 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: 0.21 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



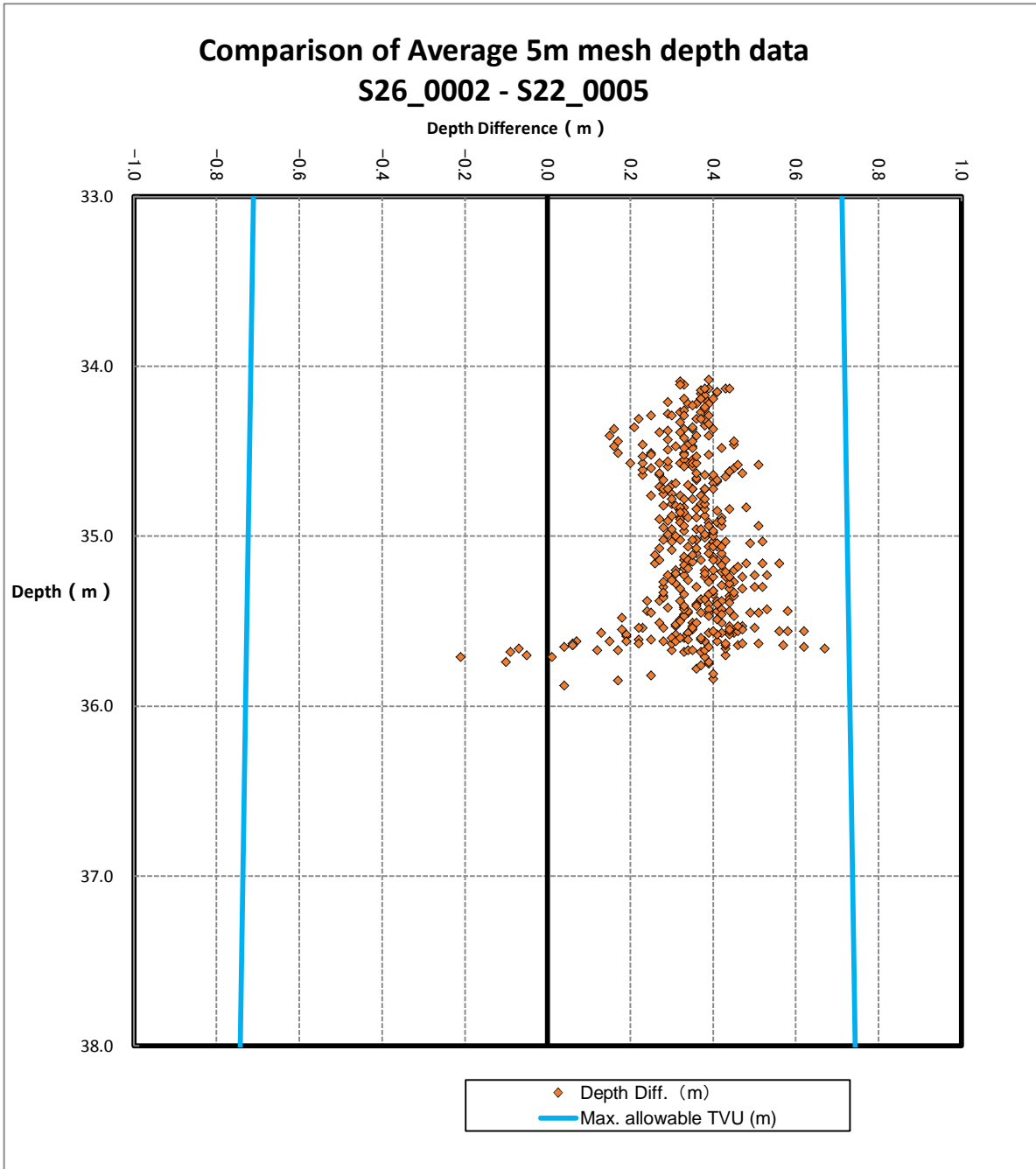
Multi-beam Echosounder Data Inspection

No.I48

Area : KampolInvalid Saom Bay Coastal and Approach  
 Order : 1a  
 Survey Line : S26\_0002  
 S22\_0005  
 Number of data 394

Number of valid data : 394 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.19 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013

d = depth

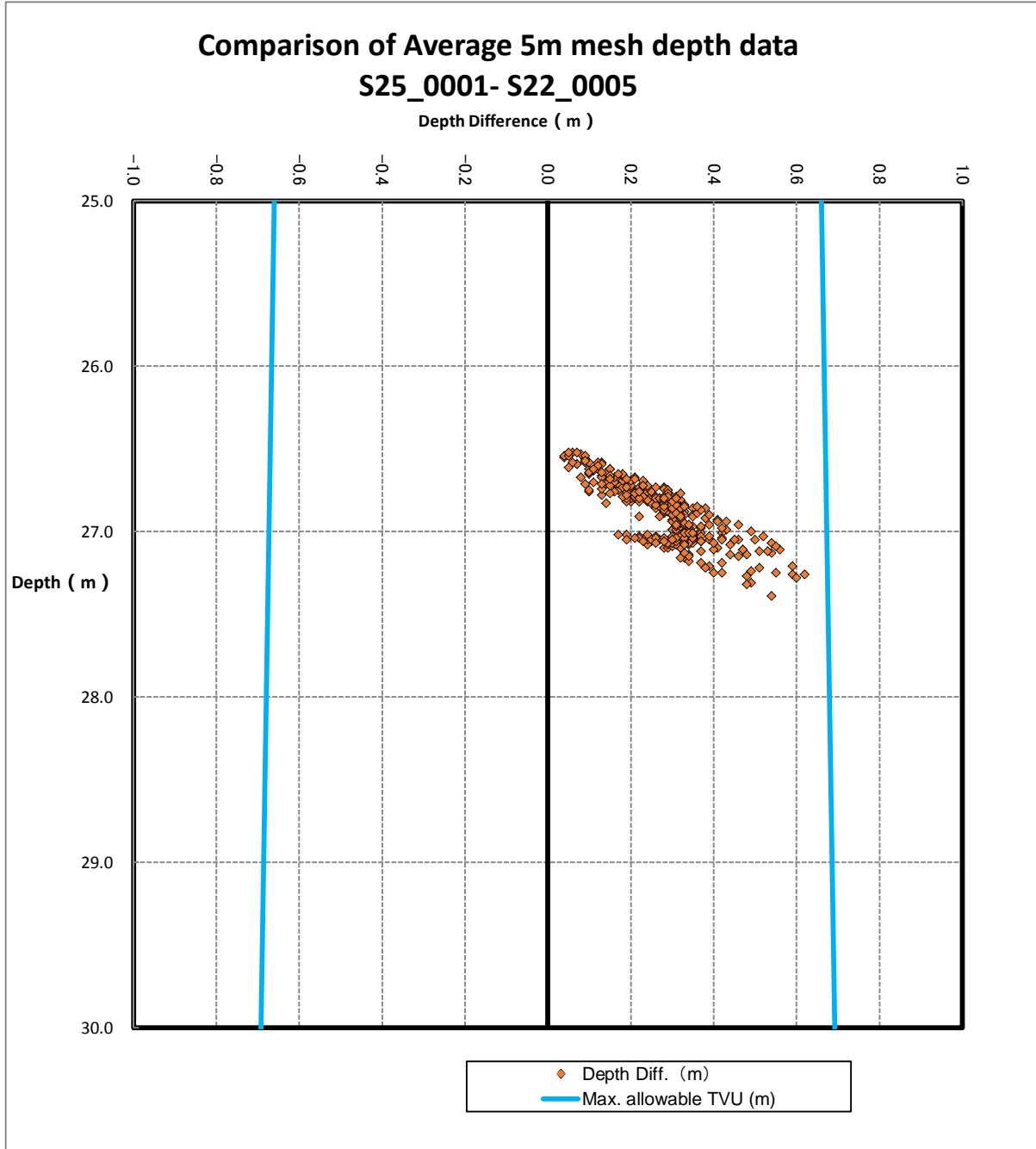


Multi-beam Echosounder Data Inspection

No.I49

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S25\_0001  
 S22\_0005  
 Number of data 356

Number of valid data : 355 99.72%  
 Number of invalid data : 1 0.28%  
 Mean Difference : 0.44 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

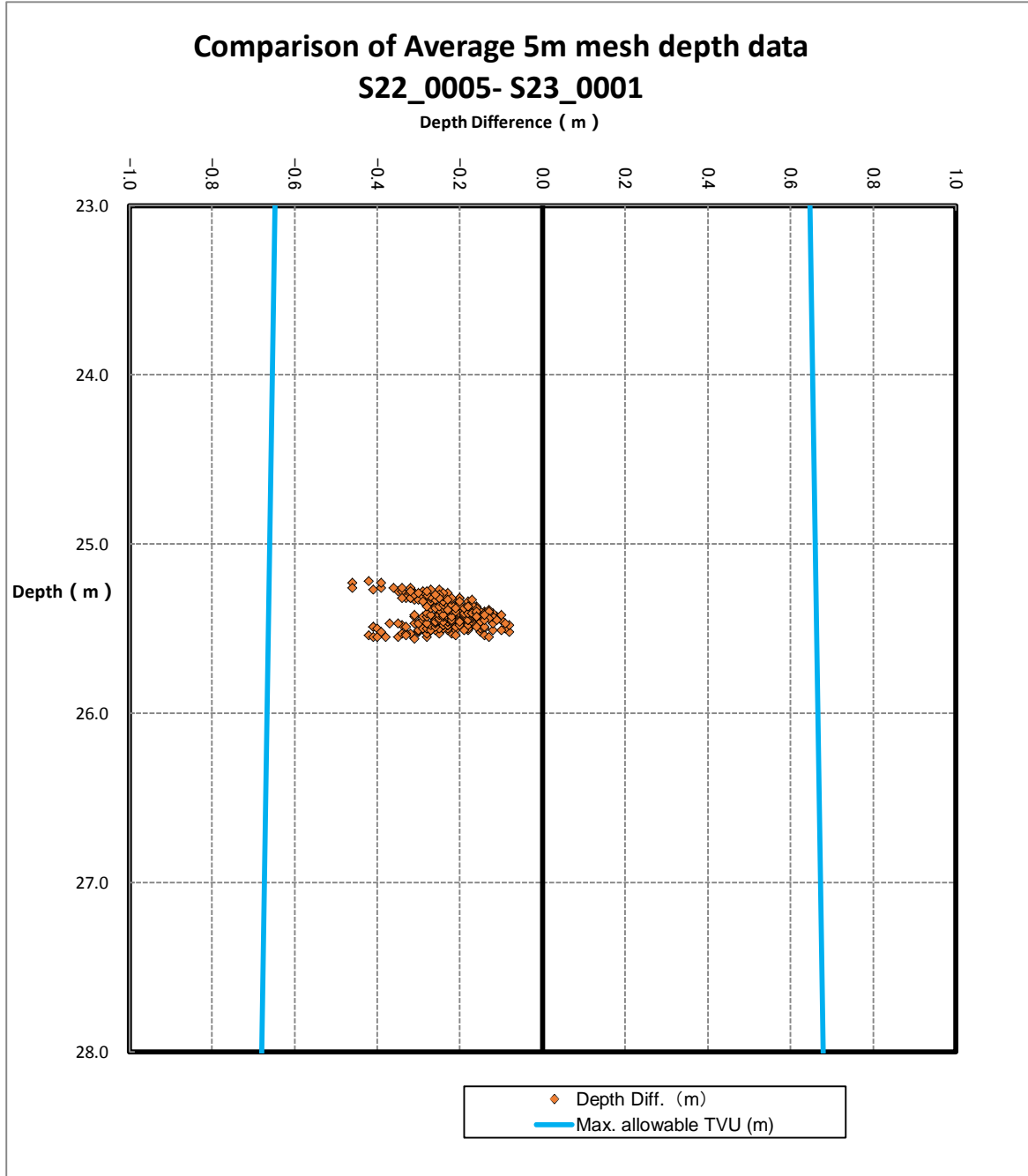


Multi-beam Echosounder Data Inspection

No.I50

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S22\_0005  
 S23\_0001  
 Number of data 325

Number of valid data : 325 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.30 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

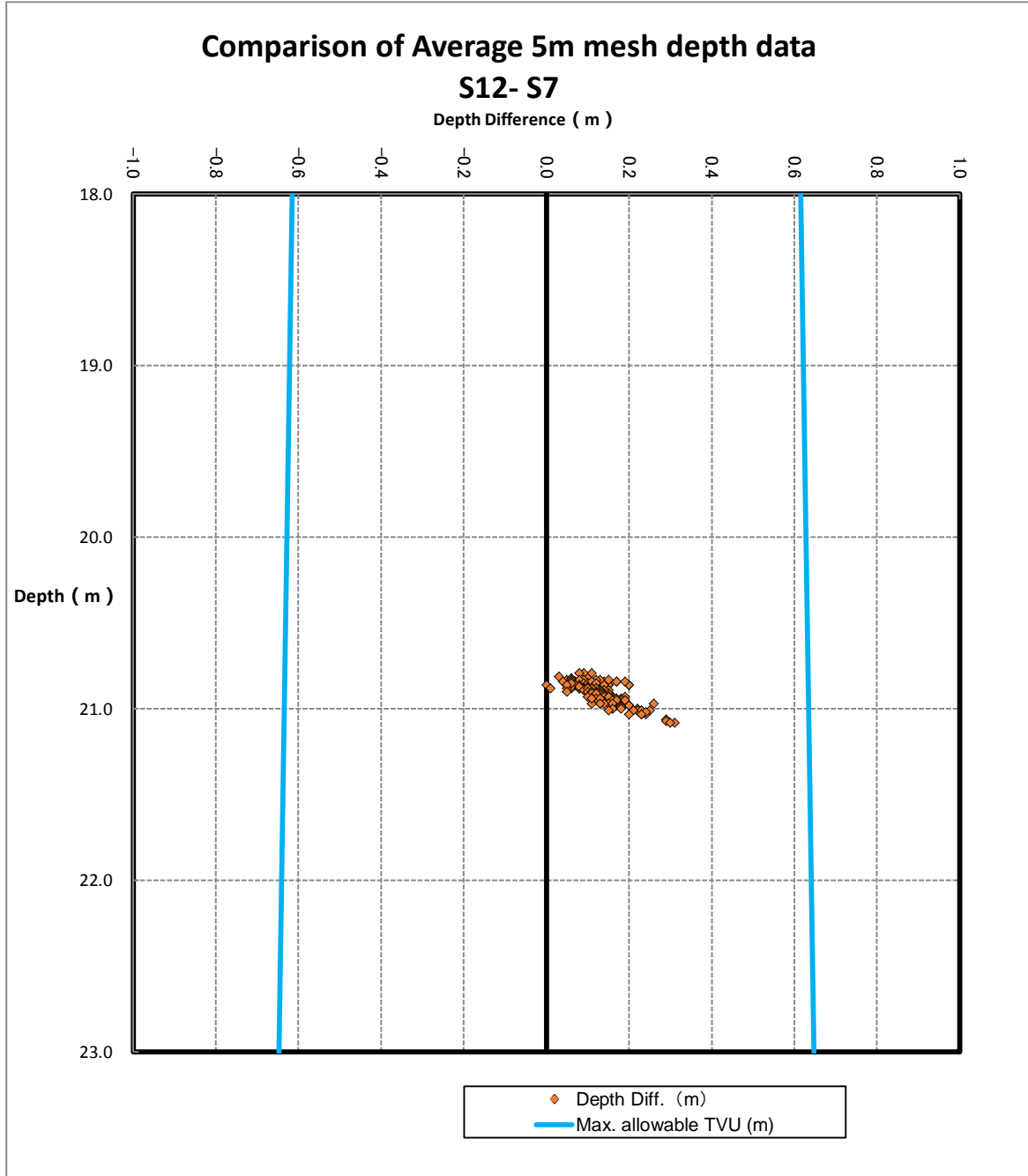


Multi-beam Echosounder Data Inspection

No.I51

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S12  
 S7  
 Number of data 196

Number of valid data : 196 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.13 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

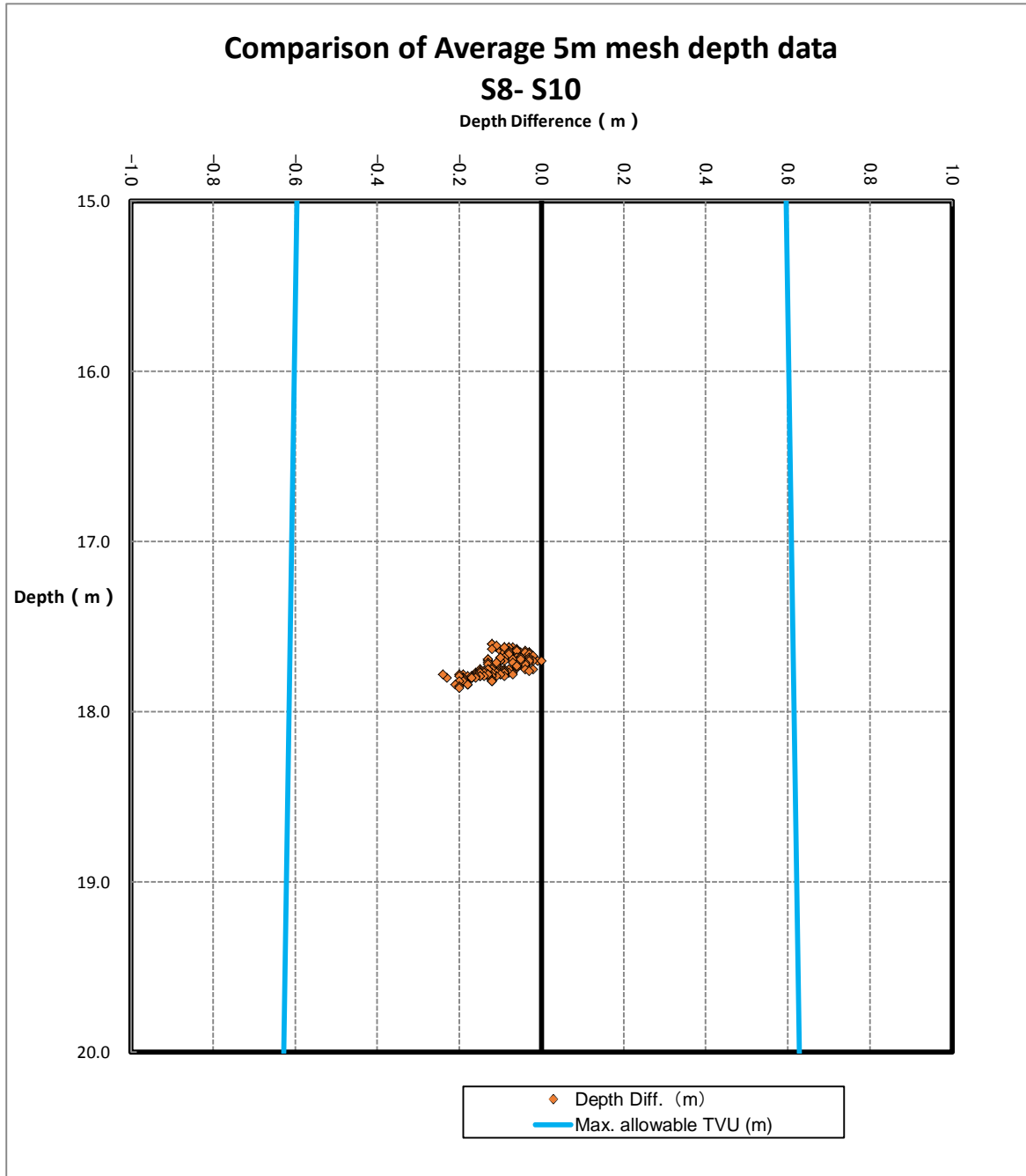


Multi-beam Echosounder Data Inspection

No.I52

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S8  
 S10  
 Number of data 168

Number of valid data : 168 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.07 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

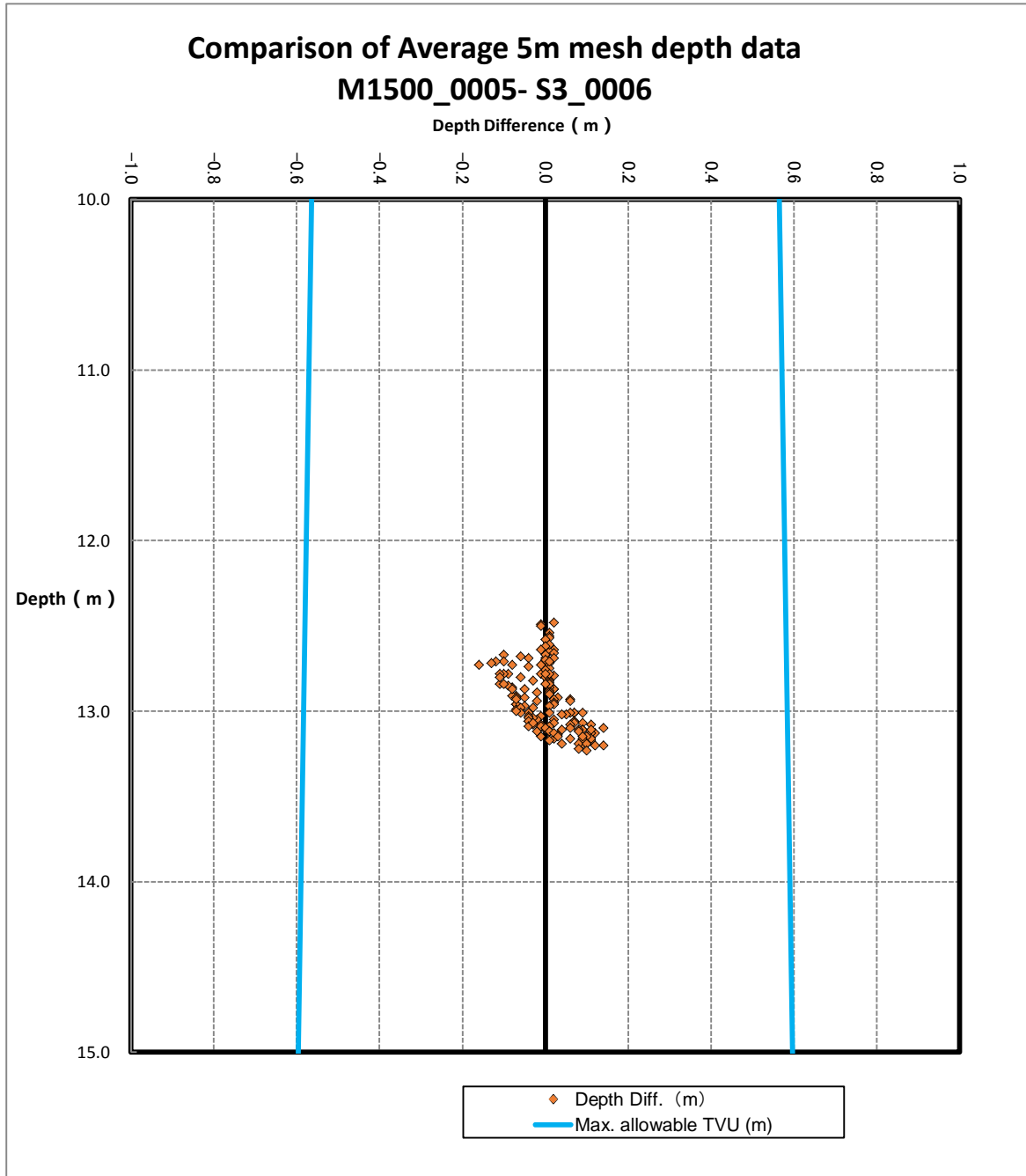


Multi-beam Echosounder Data Inspection

No.I53

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : M1500\_0005  
 S3\_0006  
 Number of data 148

Number of valid data : 148 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.02 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

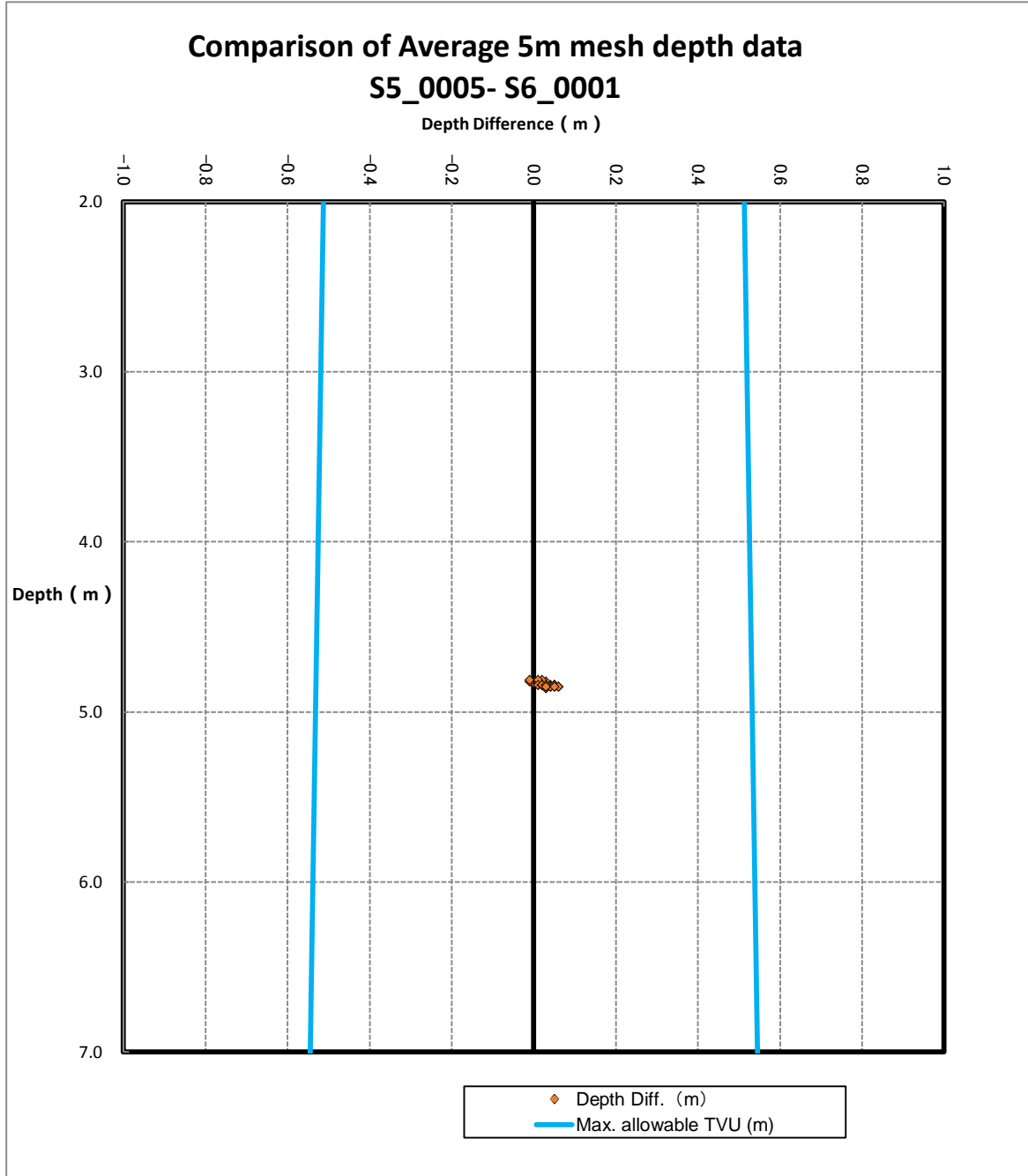


Multi-beam Echosounder Data Inspection

No.I54

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S5\_0005  
 S6\_0001  
 Number of data 28

Number of valid data : 28 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.03 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



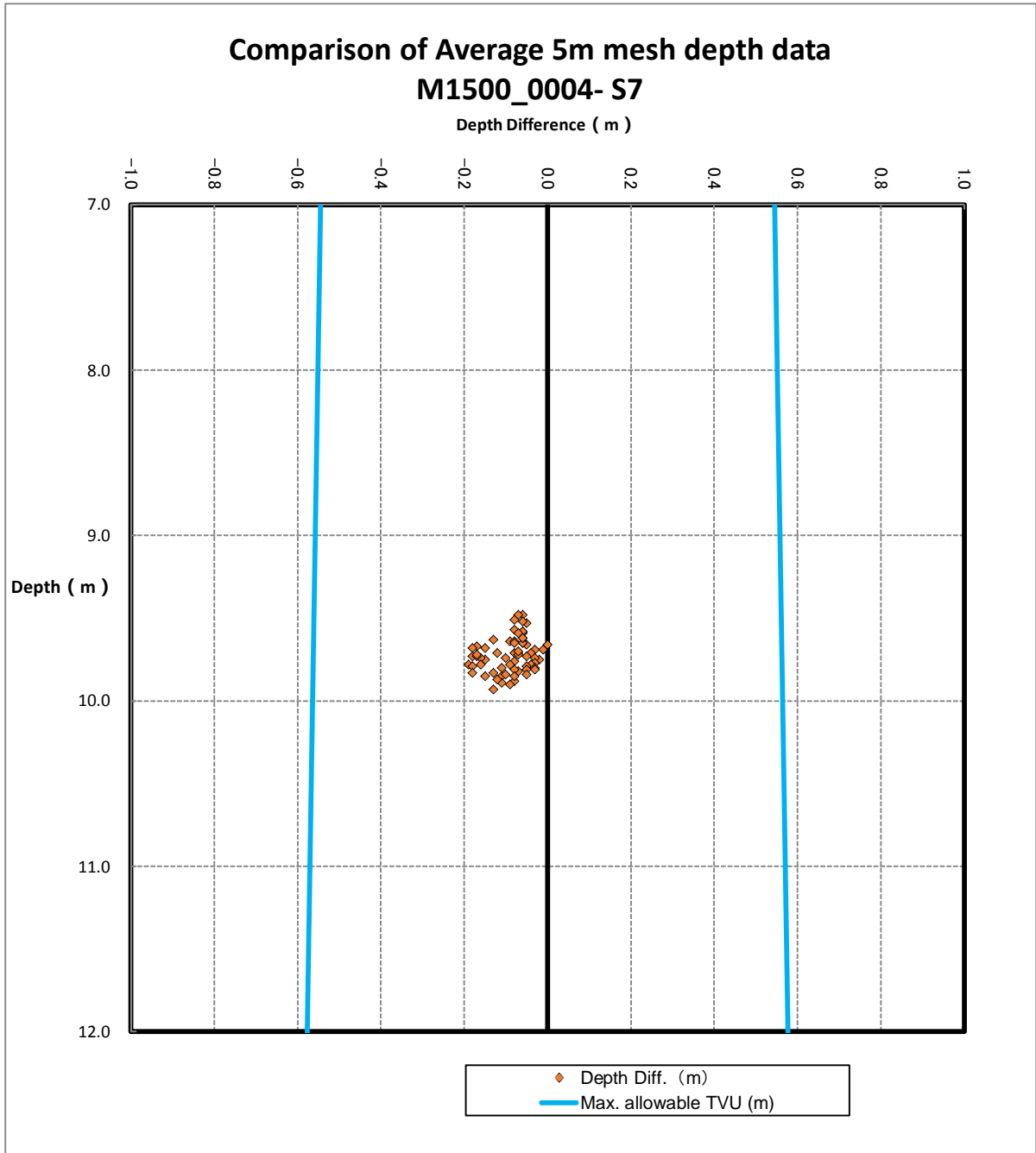


Multi-beam Echosounder Data Inspection

No.155

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : M1500\_0004  
 S7  
 Number of data 66

Number of valid data : 66 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.07 m  
 Maximum allowable TVU :  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

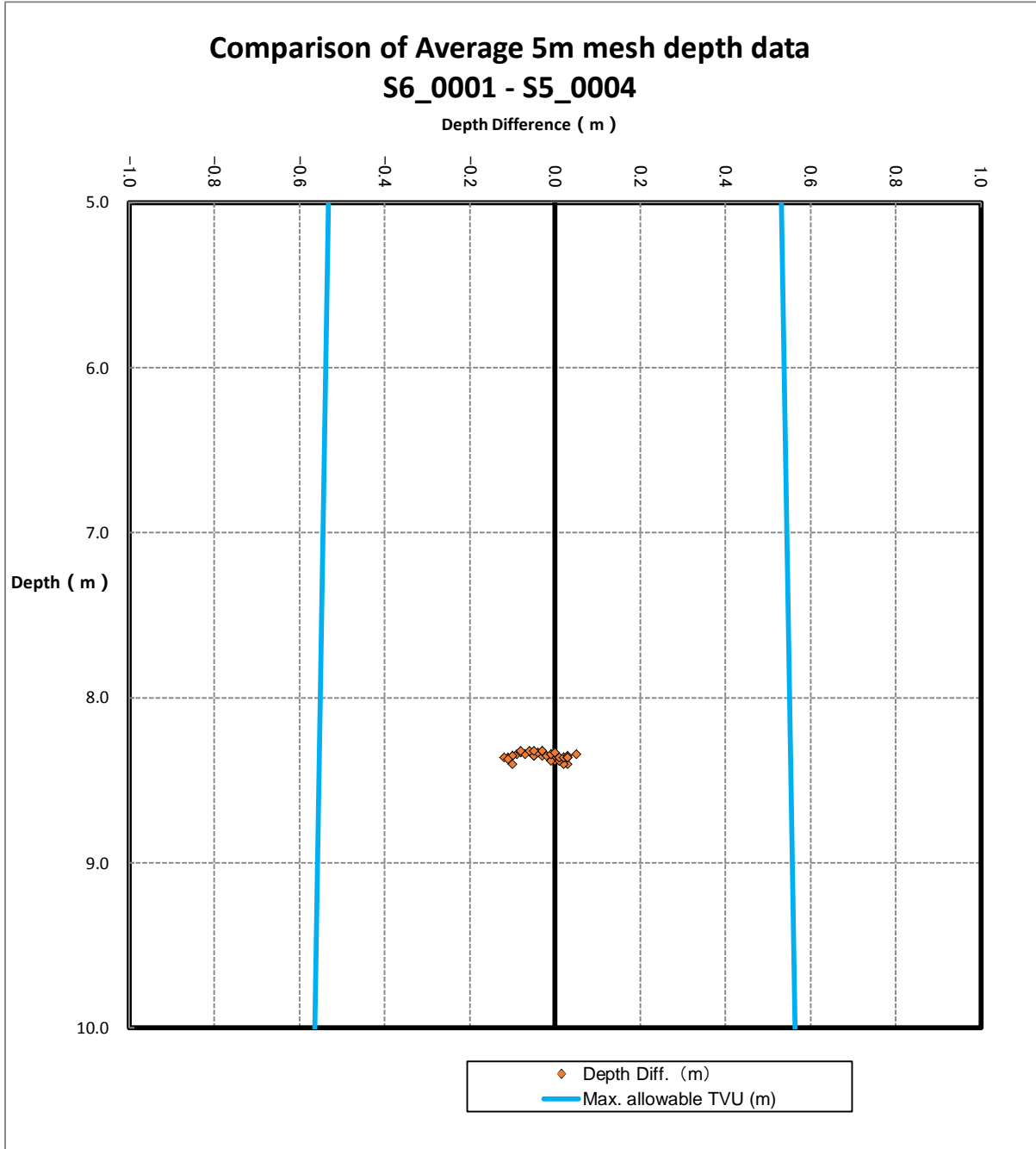


Multi-beam Echosounder Data Inspection

No.I56

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S6\_0001  
 S5\_0004  
 Number of data 40

Number of valid data: 40 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: -0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

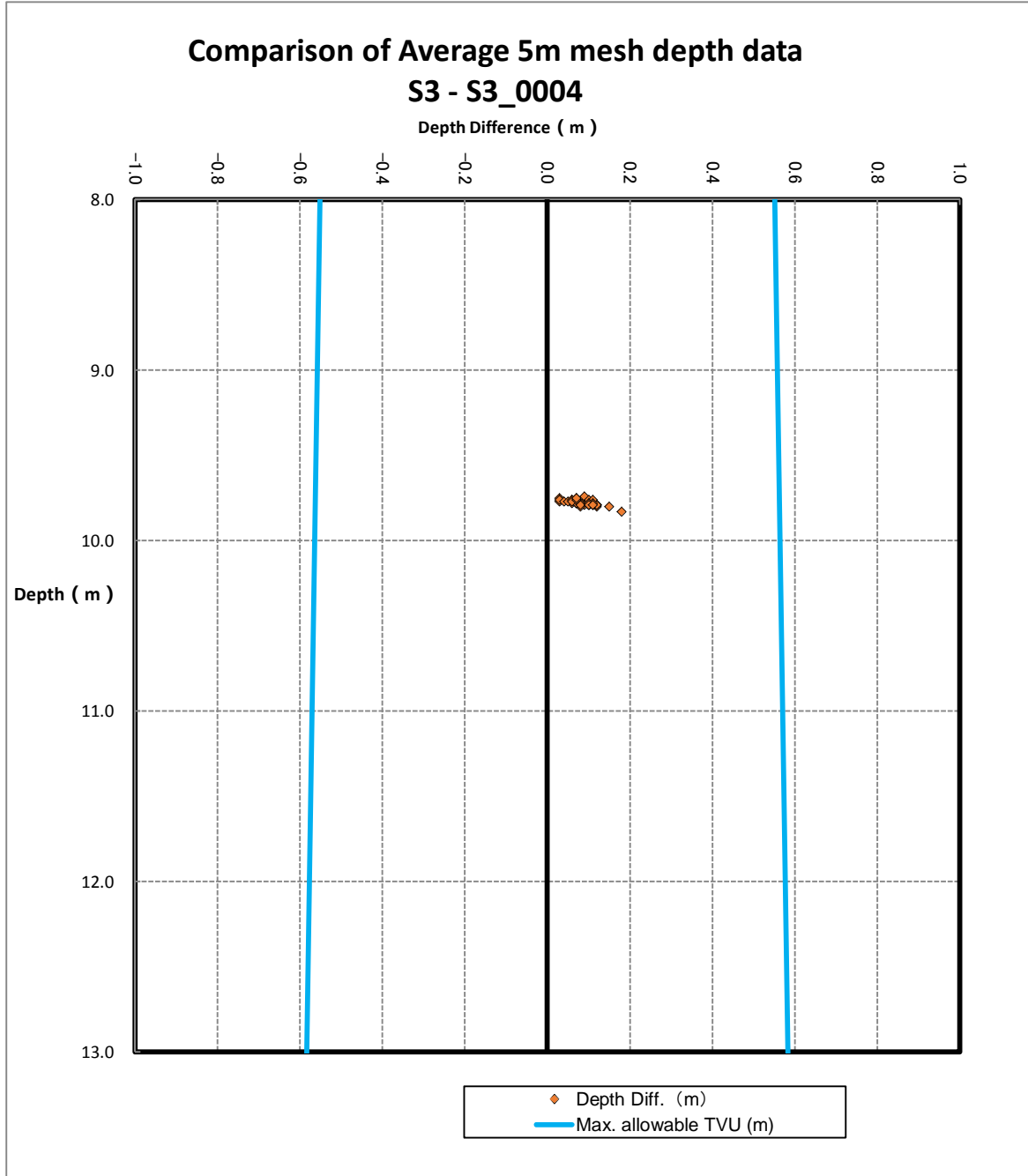


Multi-beam Echosounder Data Inspection

No.I57

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S3  
 S3\_0004  
 Number of data 53

Number of valid data : 53 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.09 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

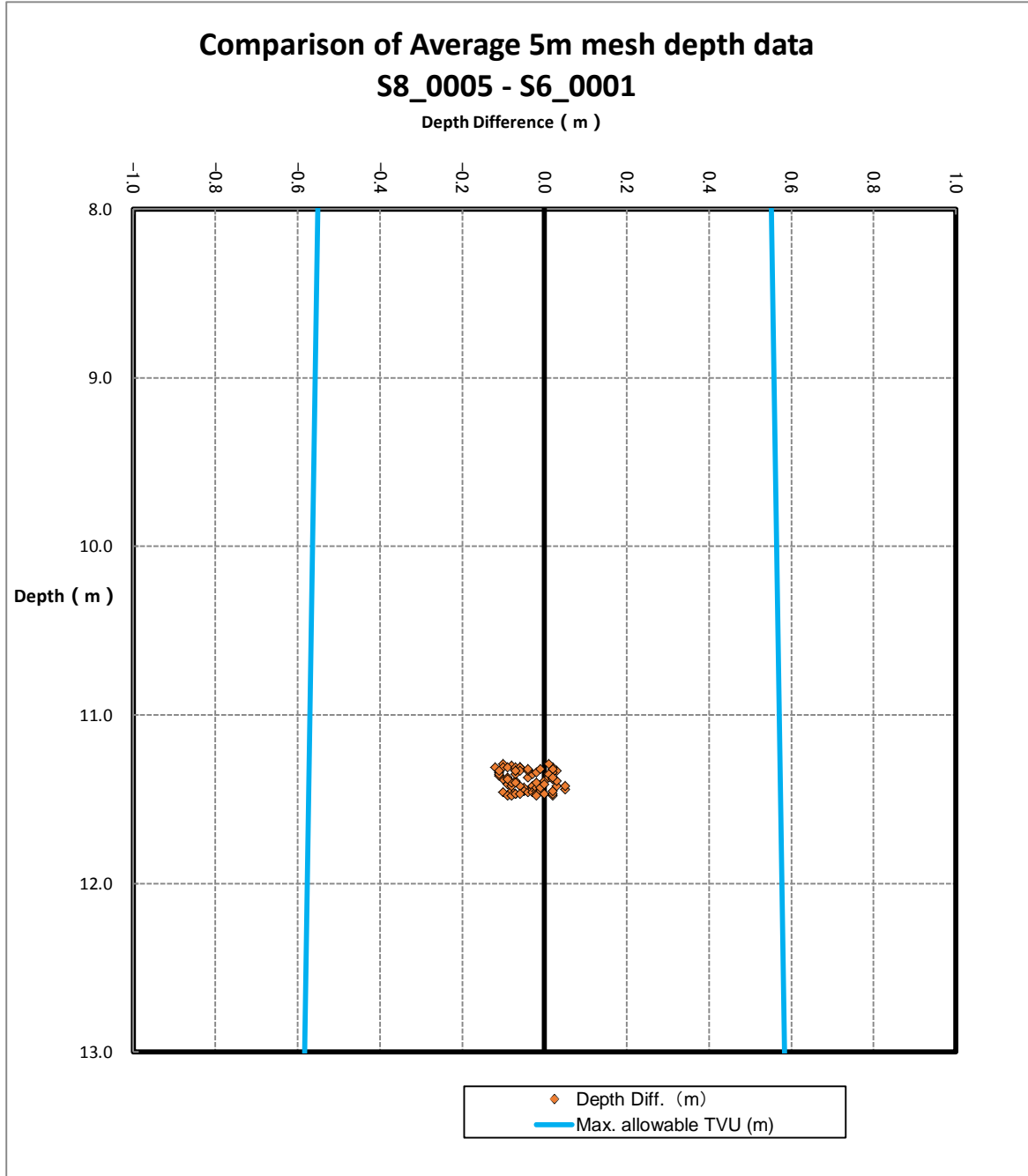


Multi-beam Echosounder Data Inspection

No.I58

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S8\_0005  
 S6\_0001  
 Number of data 77

Number of valid data : 77 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.04 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

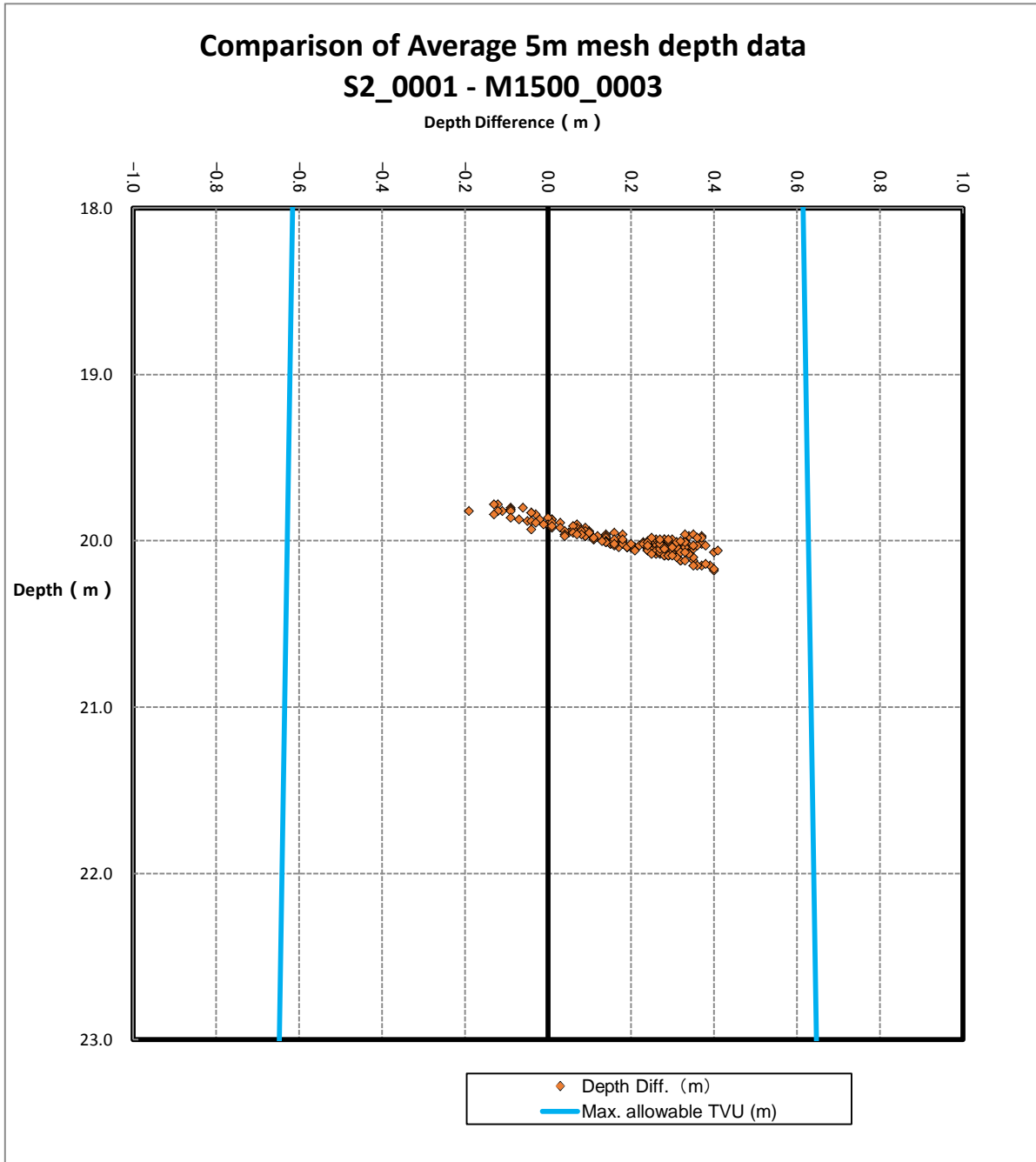


Multi-beam Echosounder Data Inspection

No.159

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S2\_0001  
 M1500\_0003  
 Number of data 201

Number of valid data: 201 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: 0.11 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

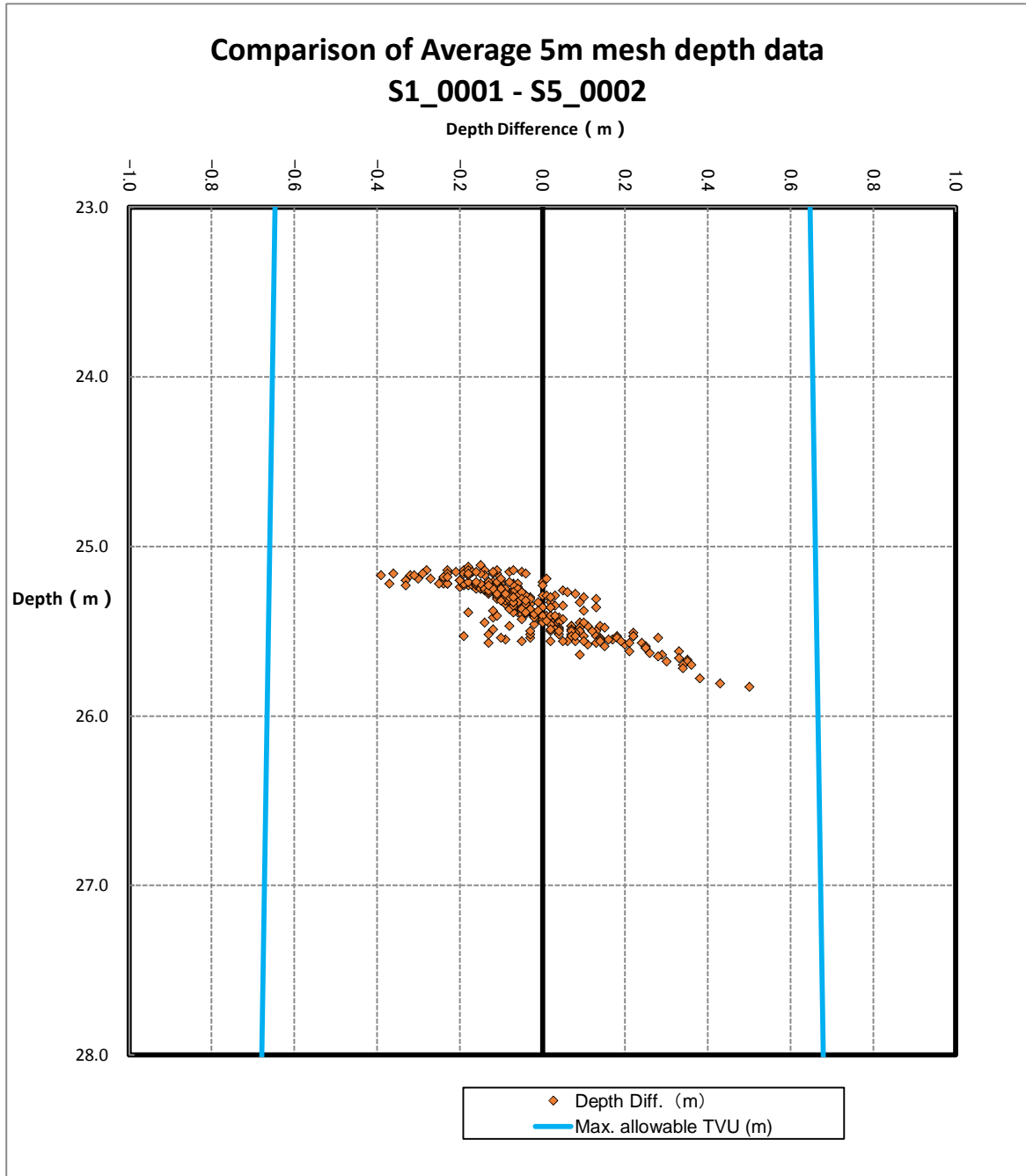


Multi-beam Echosounder Data Inspection

No.I60

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S1\_0001  
 S5\_0002  
 Number of data 322

Number of valid data : 322 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.03 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

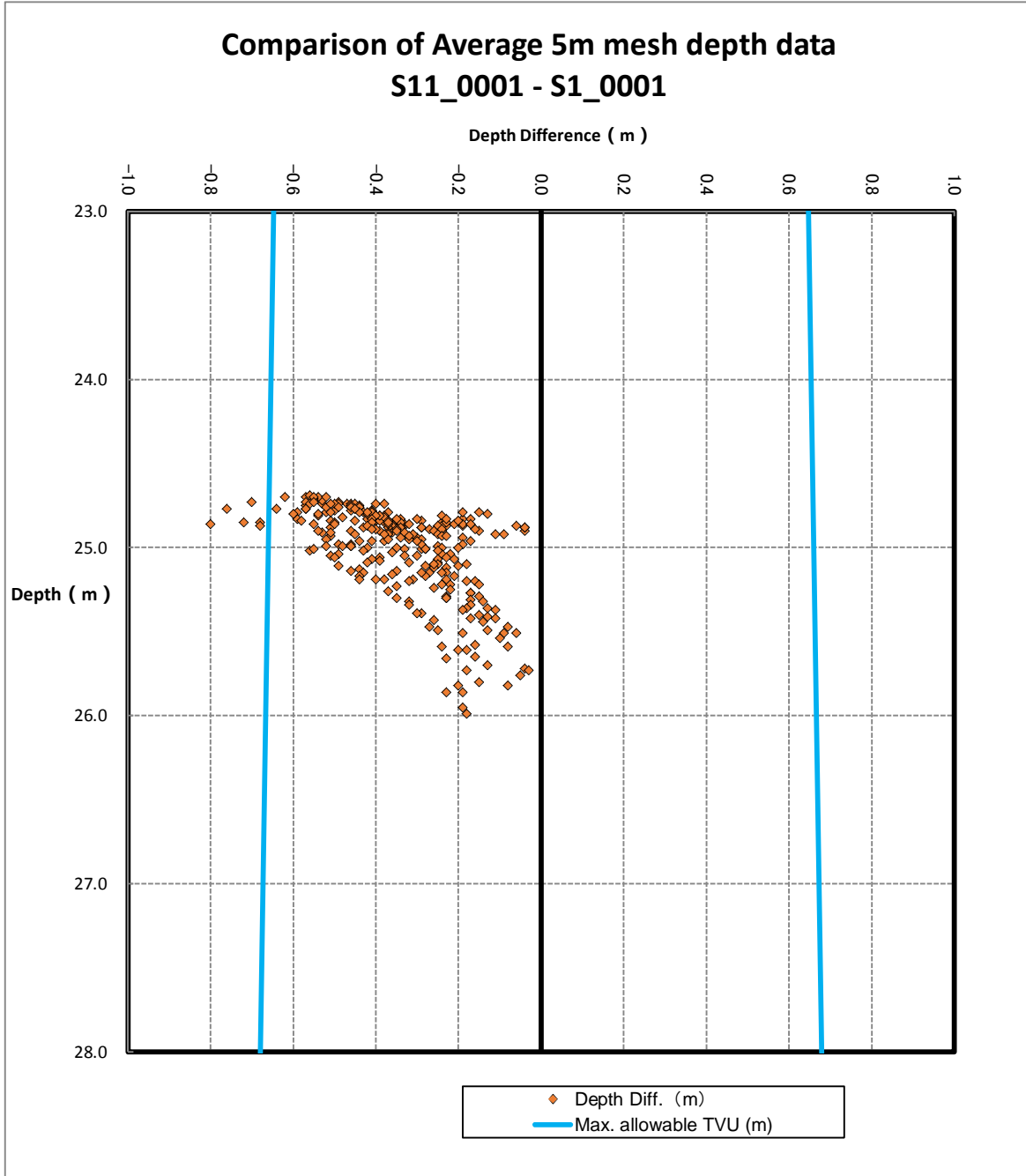


Multi-beam Echosounder Data Inspection

No.I61

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S11\_0001  
 S1\_0001  
 Number of data 294

Number of valid data: 287 97.62%  
 Number of invalid data: 11 3.74%  
 Mean Difference: -0.34 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

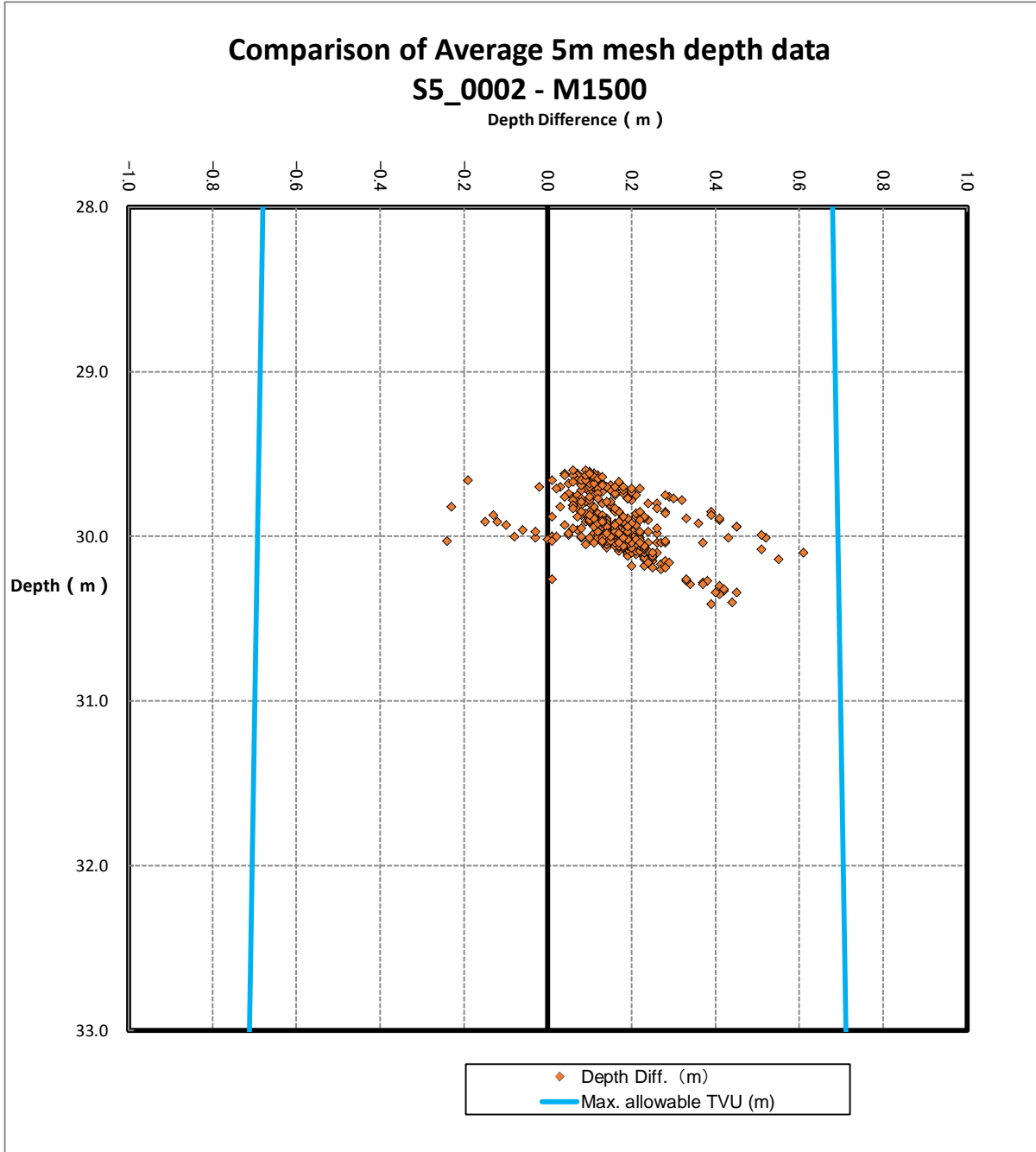


Multi-beam Echosounder Data Inspection

No.I62

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S5\_0002  
 M1500  
 Number of data 391

Number of valid data : 391 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.15 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



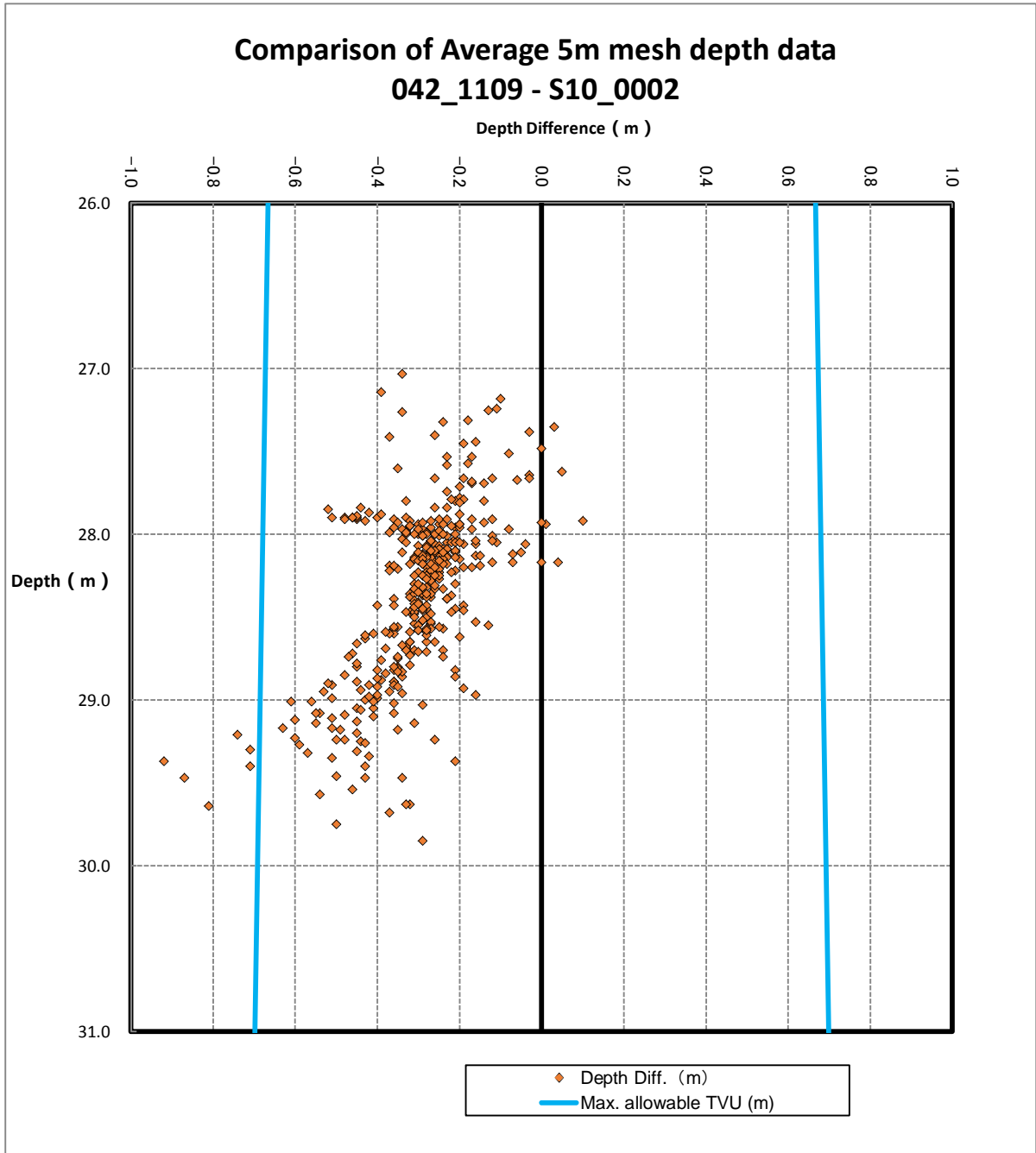


Multi-beam Echosounder Data Inspection

No.I63

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 042\_1109  
 S10\_0002  
 Number of data 392

Number of valid data : 385 98.21%  
 Number of invalid data : 7 1.79%  
 Mean Difference : -0.29 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

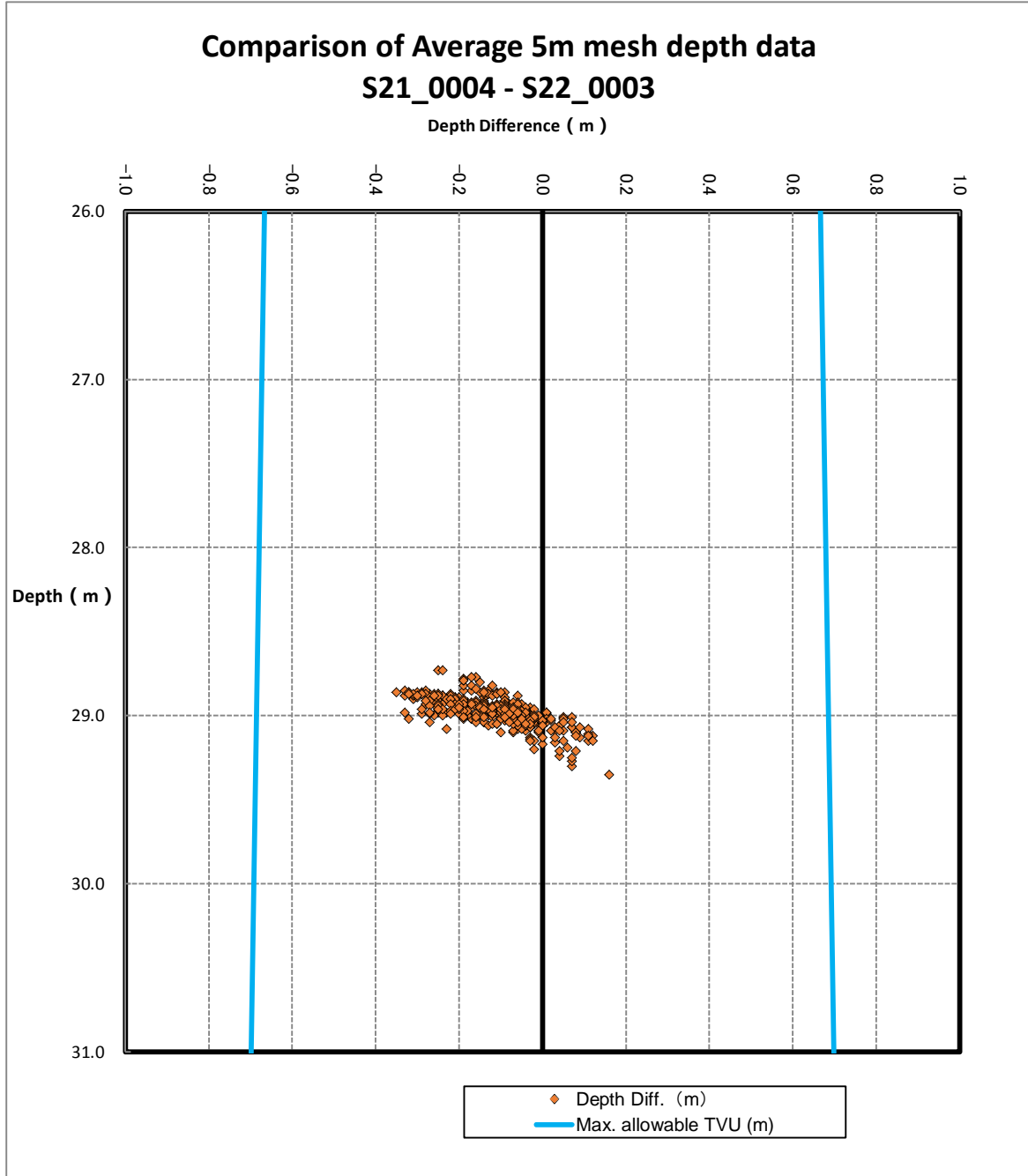


Multi-beam Echosounder Data Inspection

No.I64

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S21\_0004  
 S22\_0003  
 Number of data 399

Number of valid data : 399 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.11 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

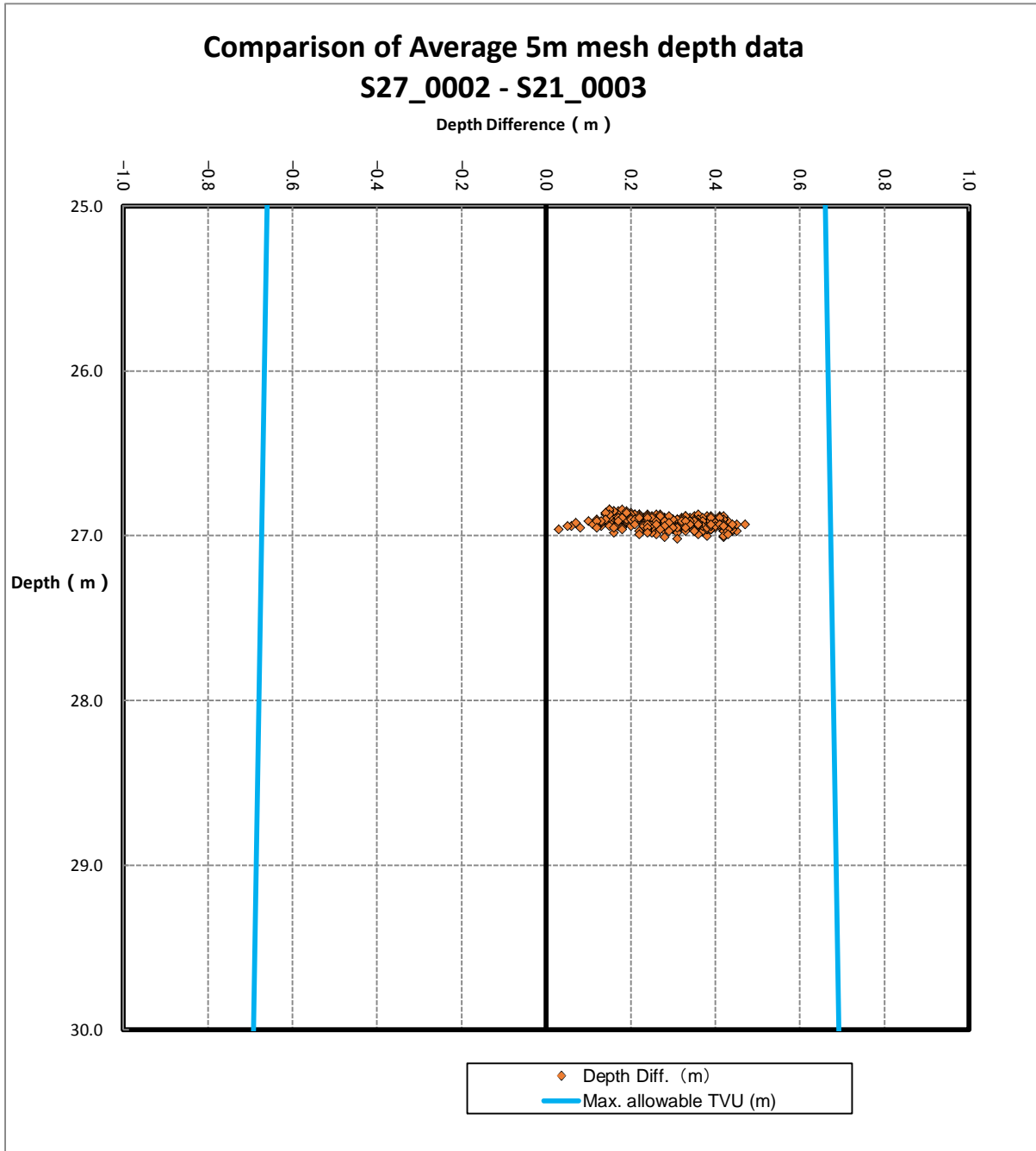


Multi-beam Echosounder Data Inspection

No.I65

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S27\_0002  
 S21\_0003  
 Number of data 352

Number of valid data: 352 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: 0.28 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

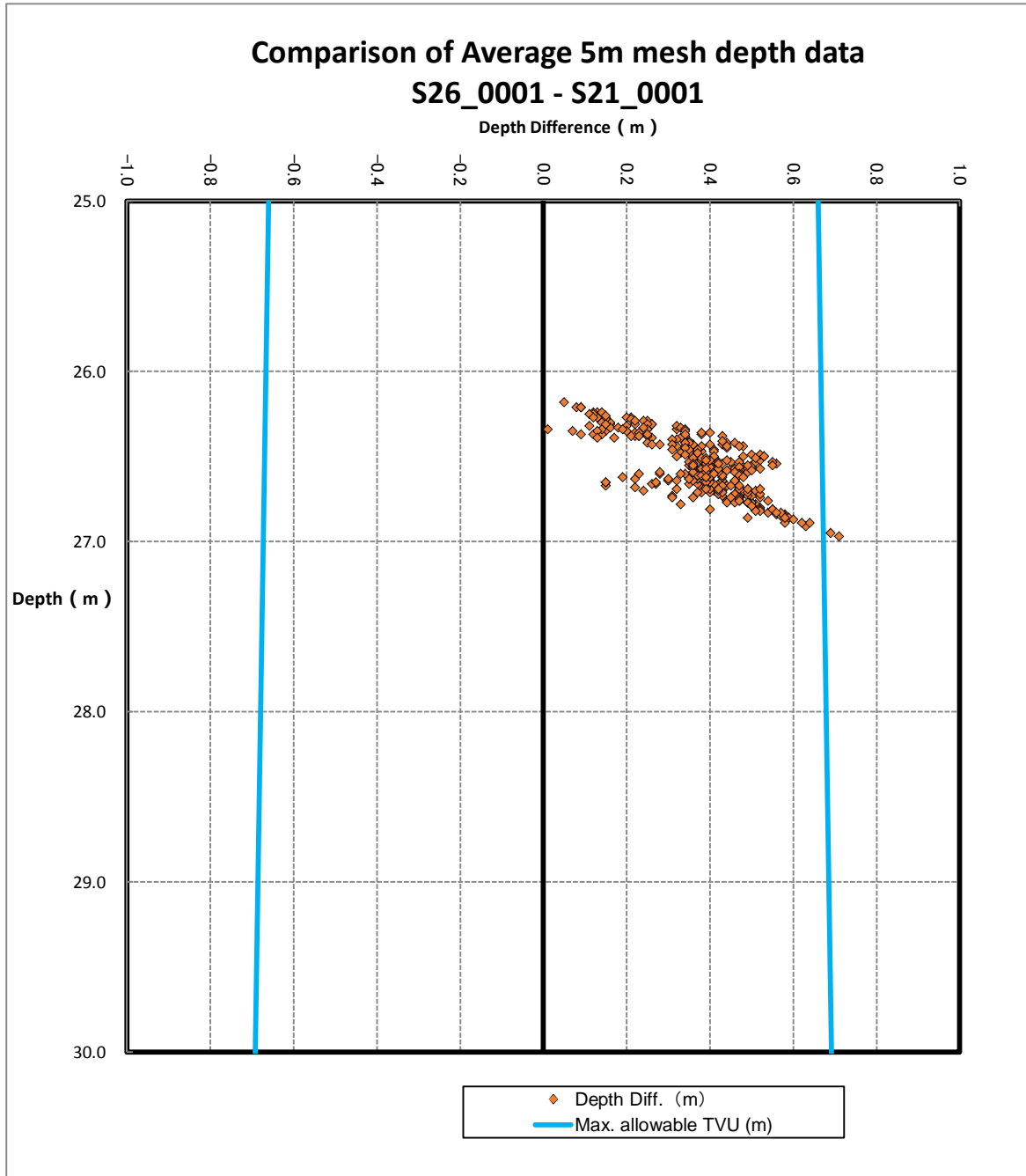


Multi-beam Echosounder Data Inspection

No.I66

Area : Kampolnvalid Saom Bay Coastal and Approach  
 Order : 1a  
 Survey Line : S26\_0001  
 S21\_0001  
 Number of data 331

Number of valid data : 325 98.19%  
 Number of invalid data : 6 1.81%  
 Mean Difference : 0.37 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

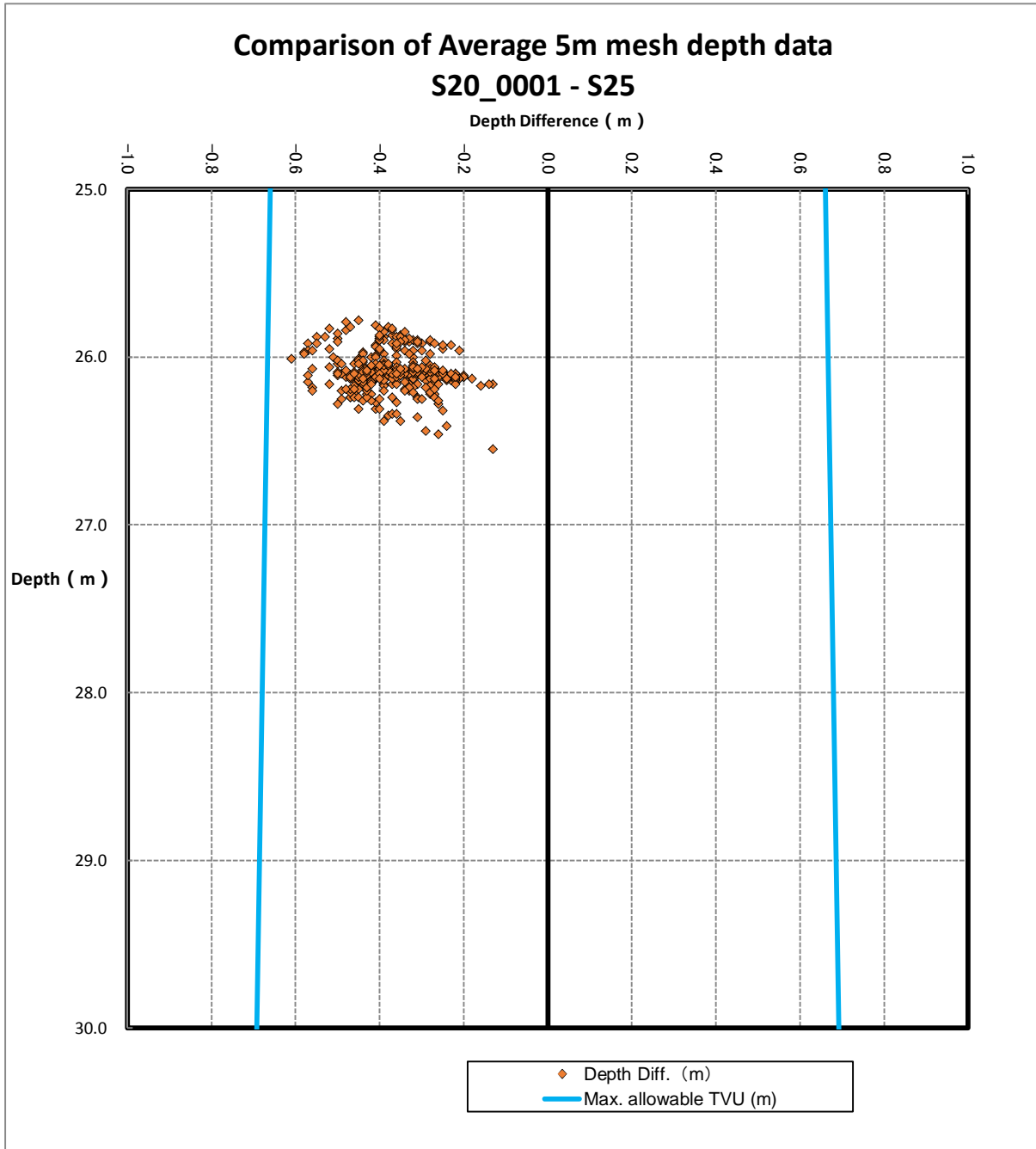


Multi-beam Echosounder Data Inspection

No.I67

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S20\_0001  
 S25  
 Number of data 343

Number of valid data: 342 99.71%  
 Number of invalid data: 1 0.29%  
 Mean Difference: -0.37 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

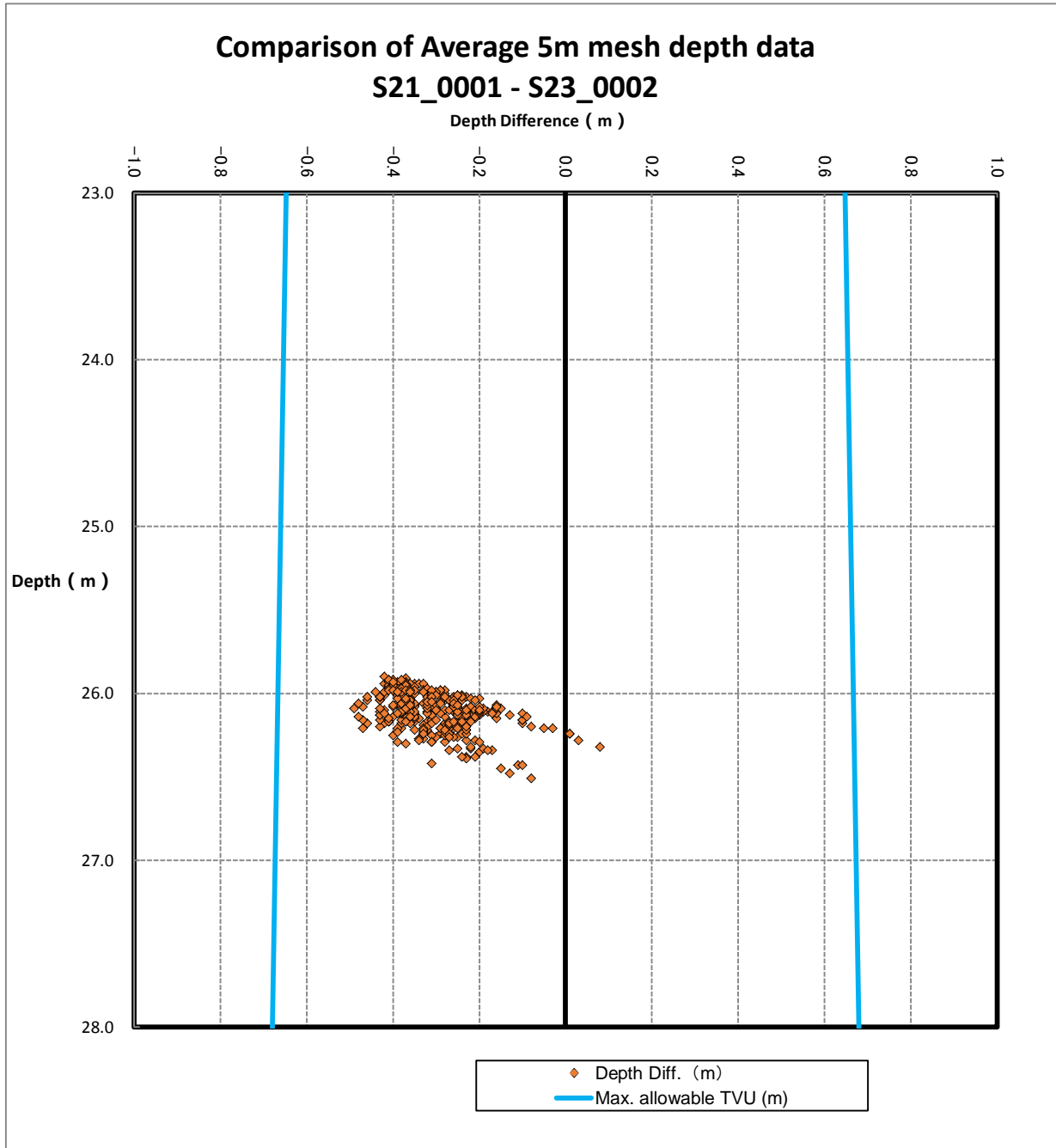


Multi-beam Echosounder Data Inspection

No.I68

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S21\_0001  
 S23\_0002  
 Number of data 344

Number of valid data : 344 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.31 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

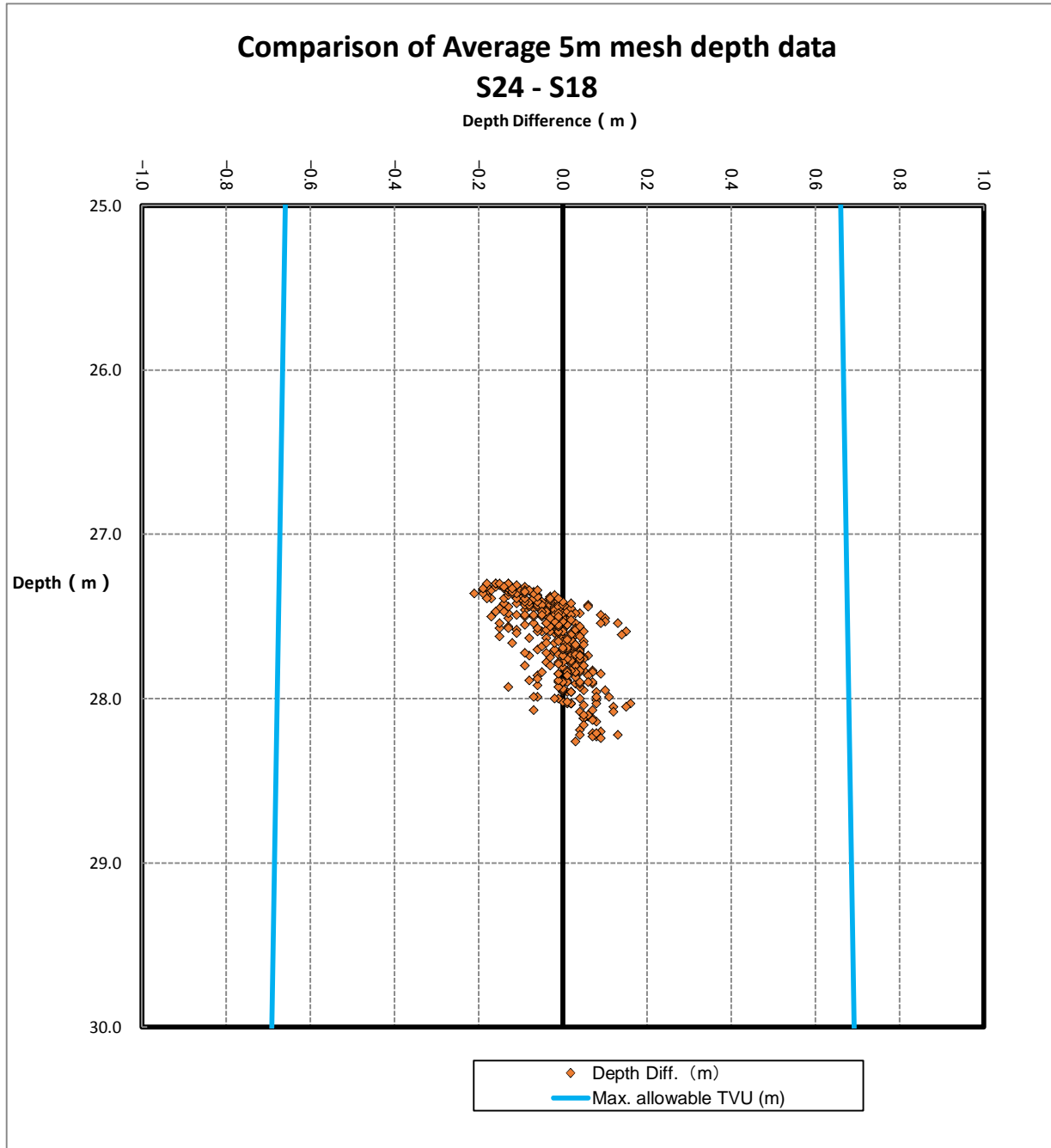


Multi-beam Echosounder Data Inspection

No.I69

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S24  
 S18  
 Number of data 371

Number of valid data: 371 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: -0.02 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

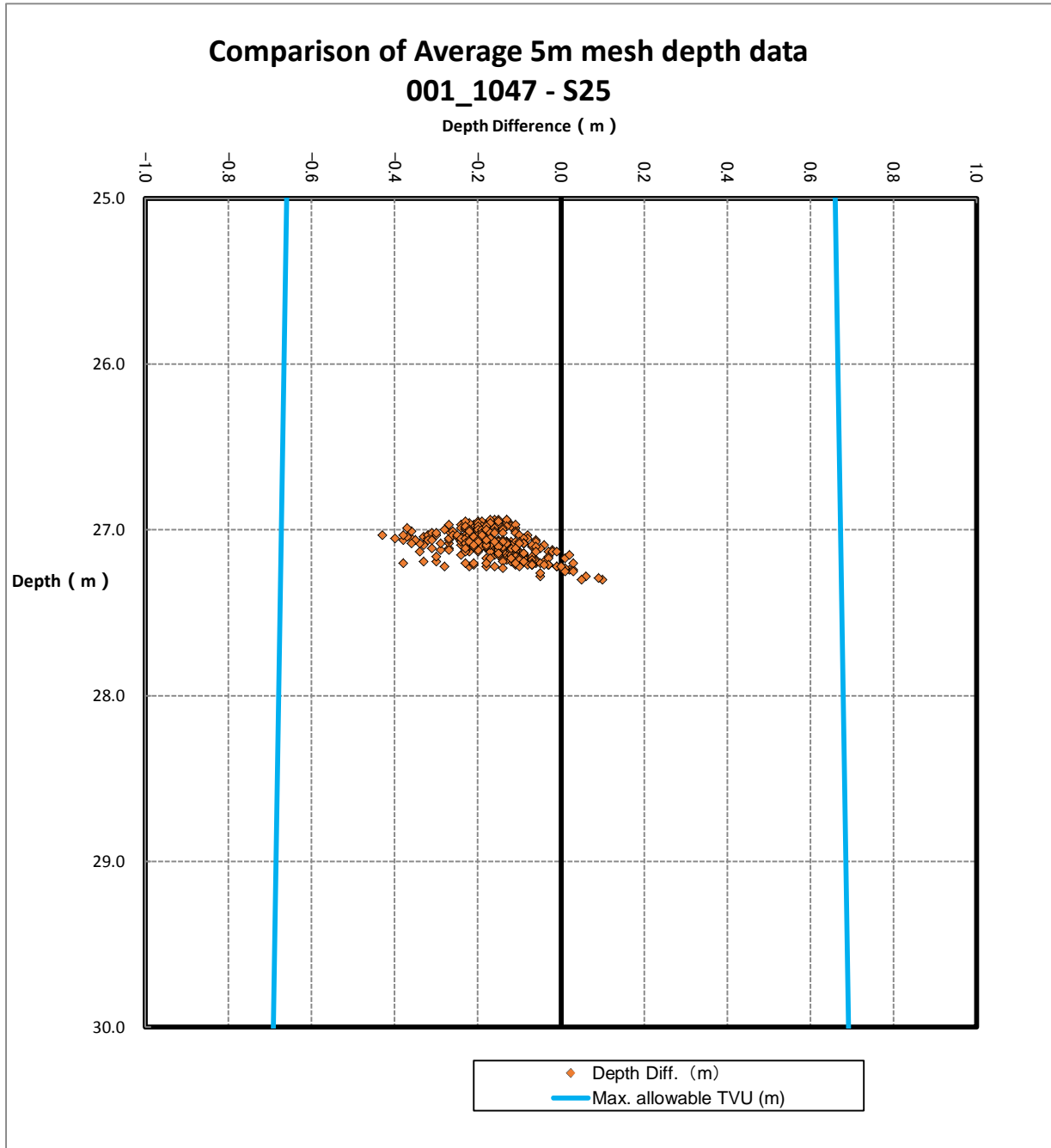


Multi-beam Echosounder Data Inspection

No.I70-AB

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 001\_1047  
 S25  
 Number of data 368

Number of valid data: 368 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: -0.16 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



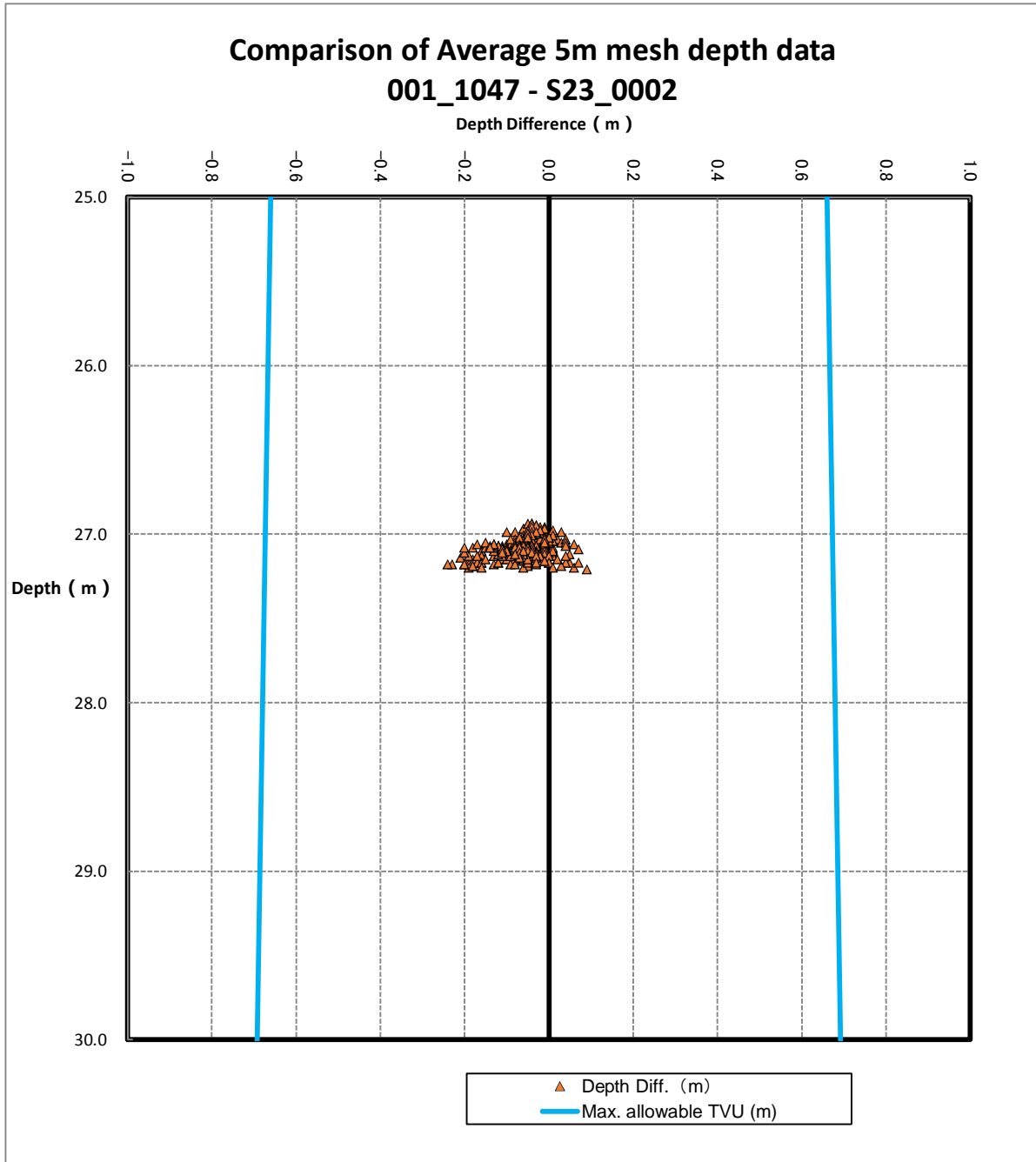


Multi-beam Echosounder Data Inspection

No.I70-AC

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 001\_1047  
 S23\_0002  
 Number of data 330

Number of valid data: 330 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: -0.06 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

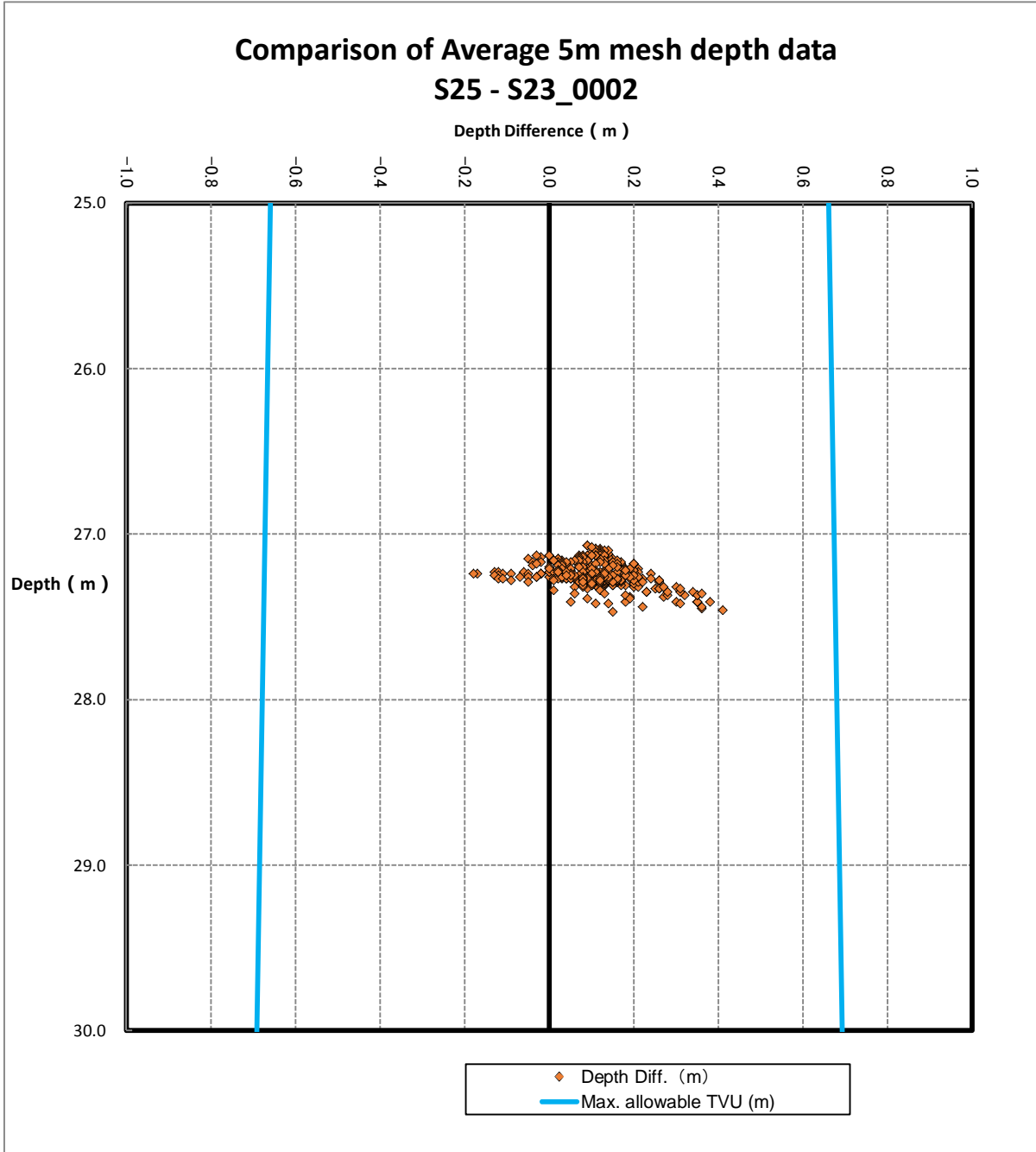


Multi-beam Echosounder Data Inspection

No.I70-BC

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S25  
 S23\_0002  
 Number of data 344

Number of valid data : 344 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.11 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

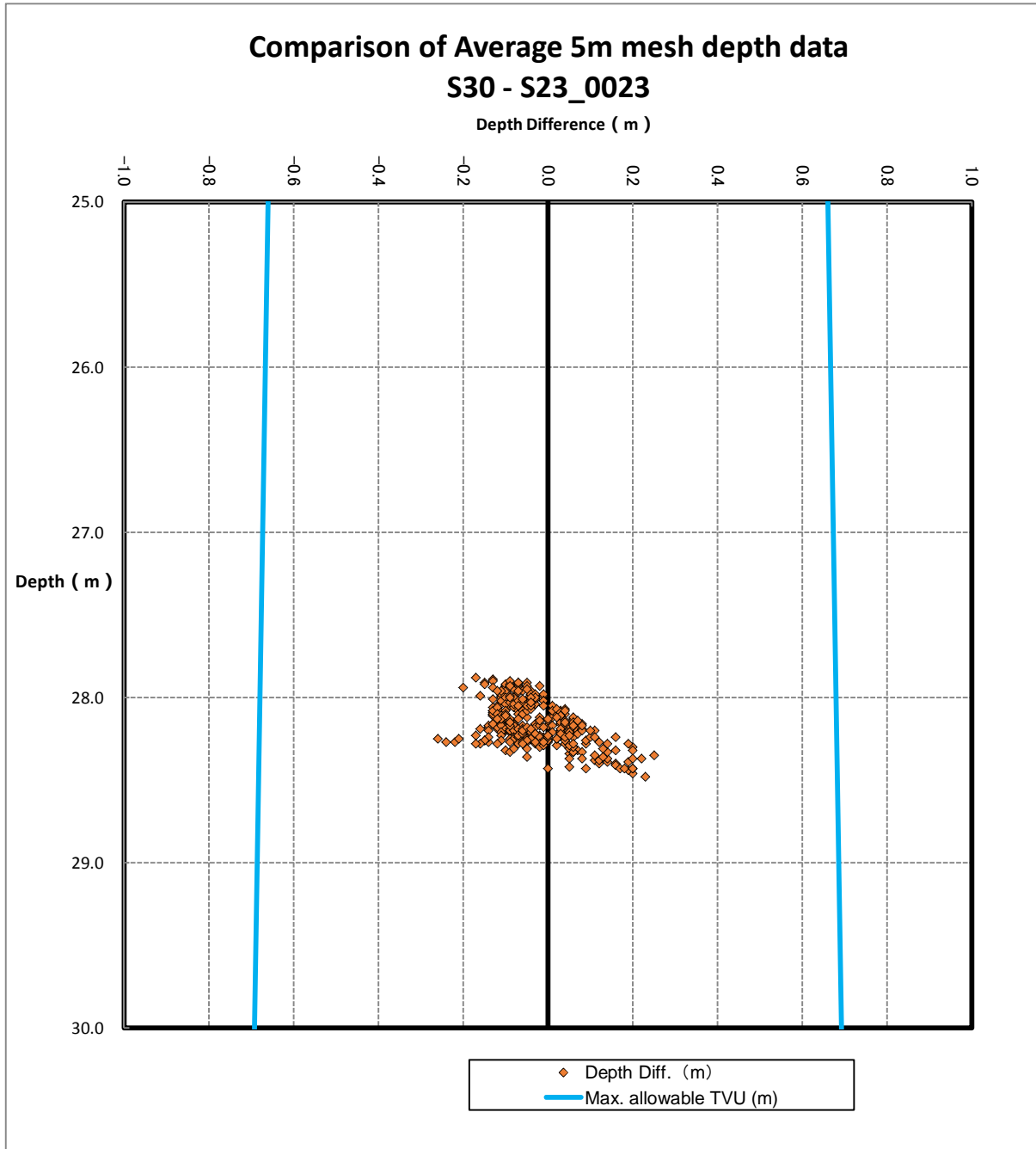


Multi-beam Echosounder Data Inspection

No.171

Area : Kampolnvalid Saom Bay Coastal and Approach  
 Order : 1a  
 Survey Line : S30  
 S23\_0003  
 Number of data 372

Number of valid data: 372 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: -0.03 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

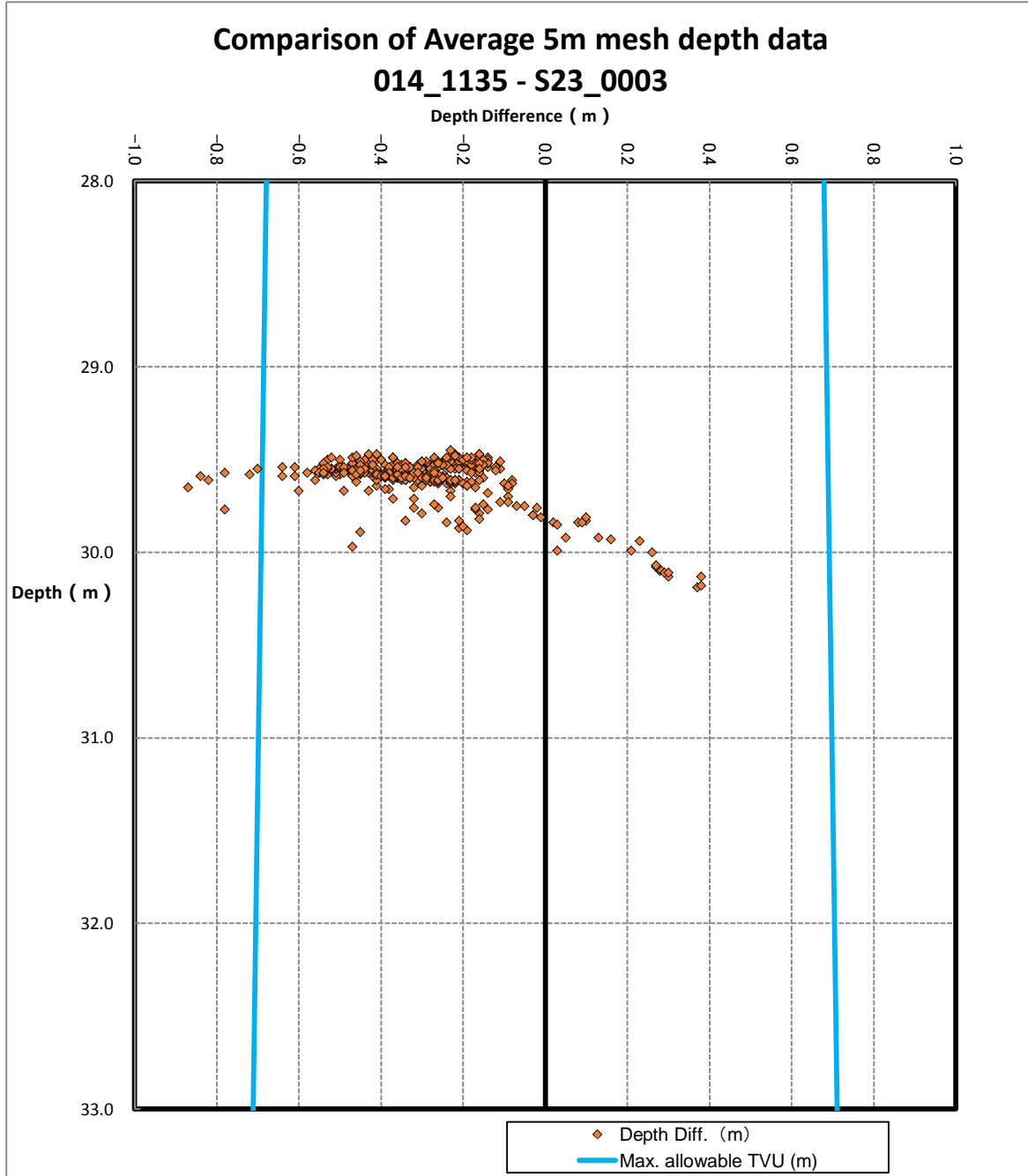


Multi-beam Echosounder Data Inspection

No.172

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 014\_1135  
 S23\_0003  
 Number of data 389

Number of valid data : 380 97.69%  
 Number of invalid data : 9 2.31%  
 Mean Difference : -0.34 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

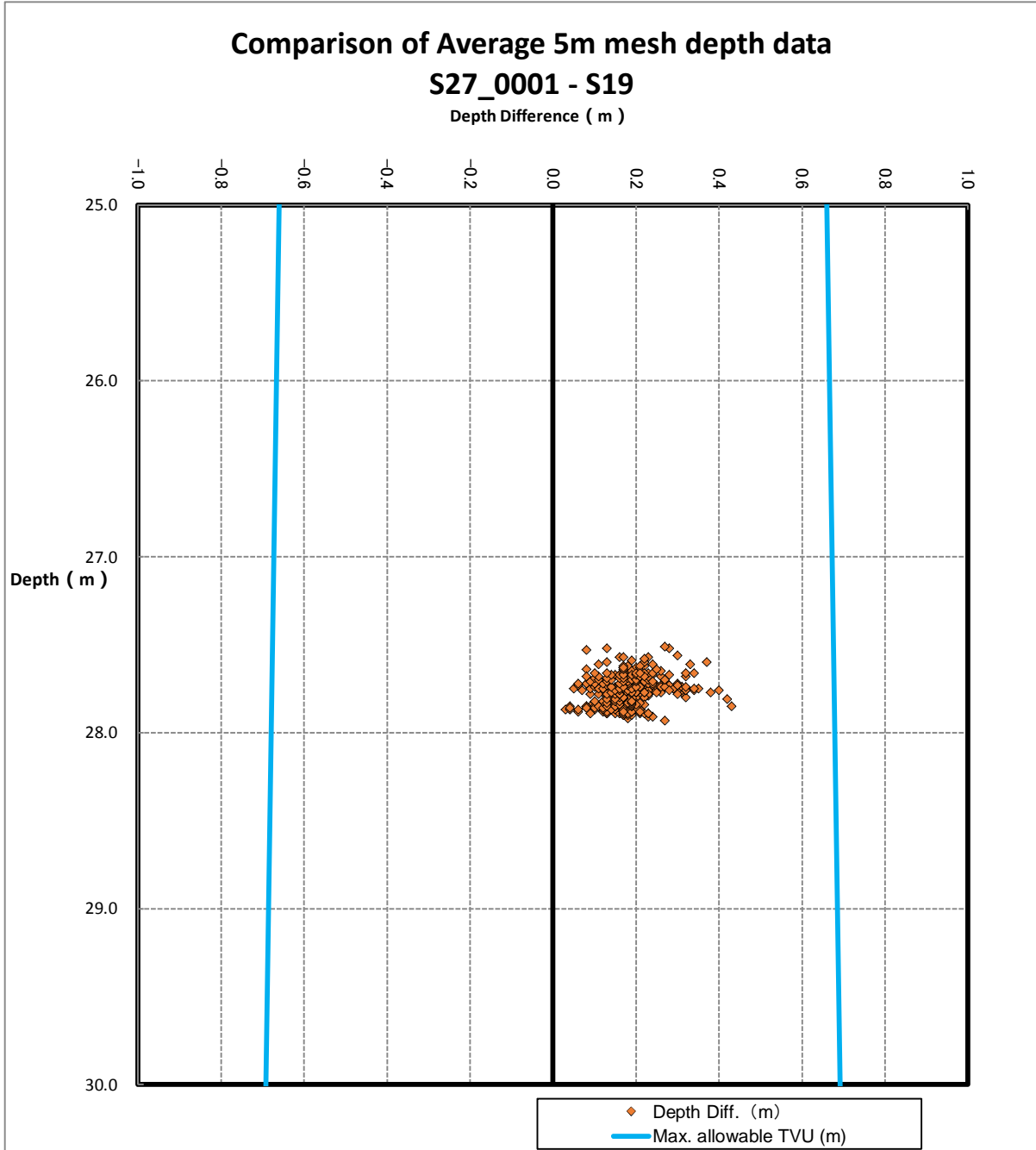


Multi-beam Echosounder Data Inspection

No.173

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S27\_0001  
 S19  
 Number of data 353

Number of valid data : 353 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.18 m  
 Maximum allowable TVU :  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

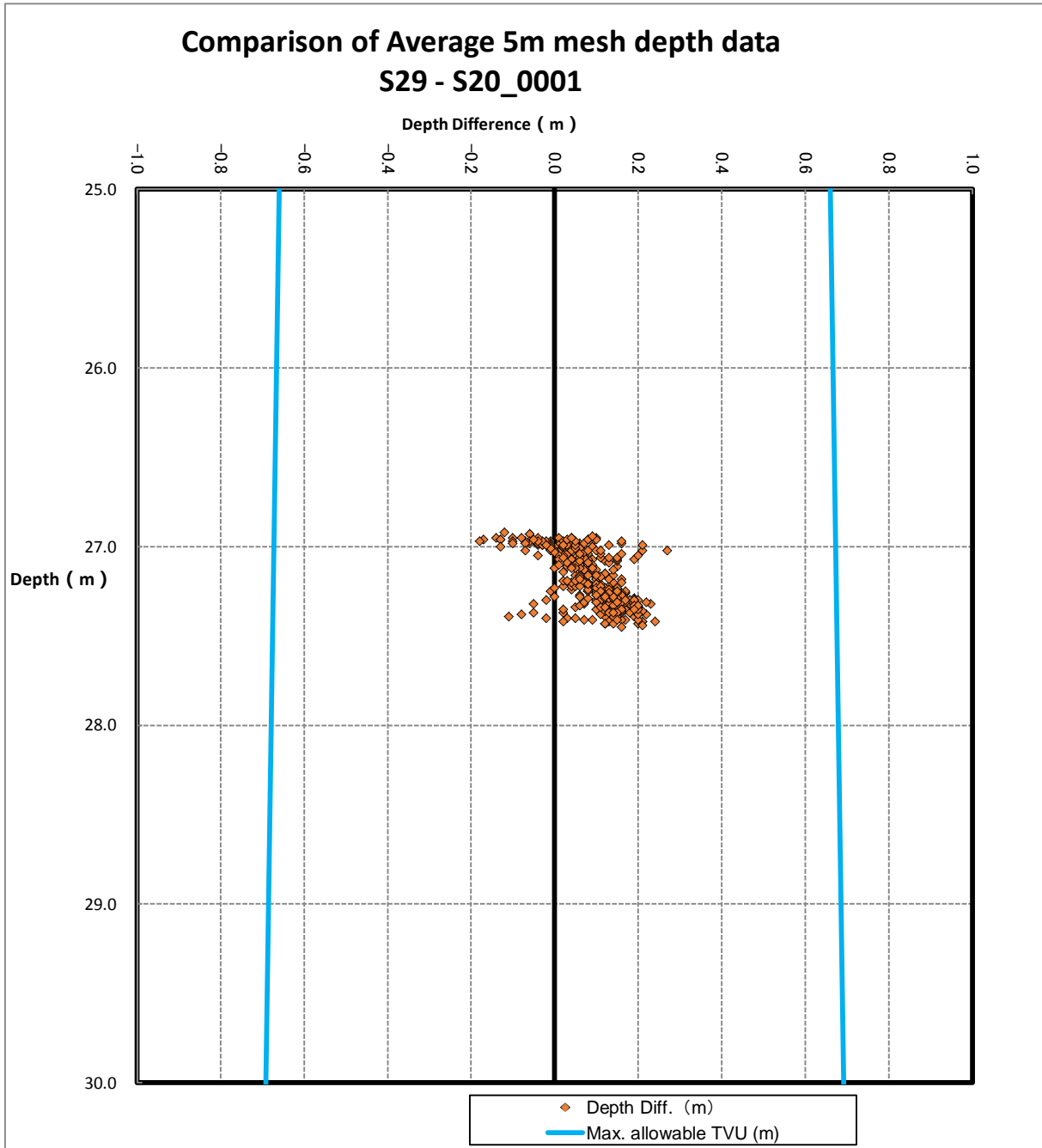


Multi-beam Echosounder Data Inspection

No.I74

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S29  
 S20\_0001  
 Number of data 359

Number of valid data: 359 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: 0.09 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

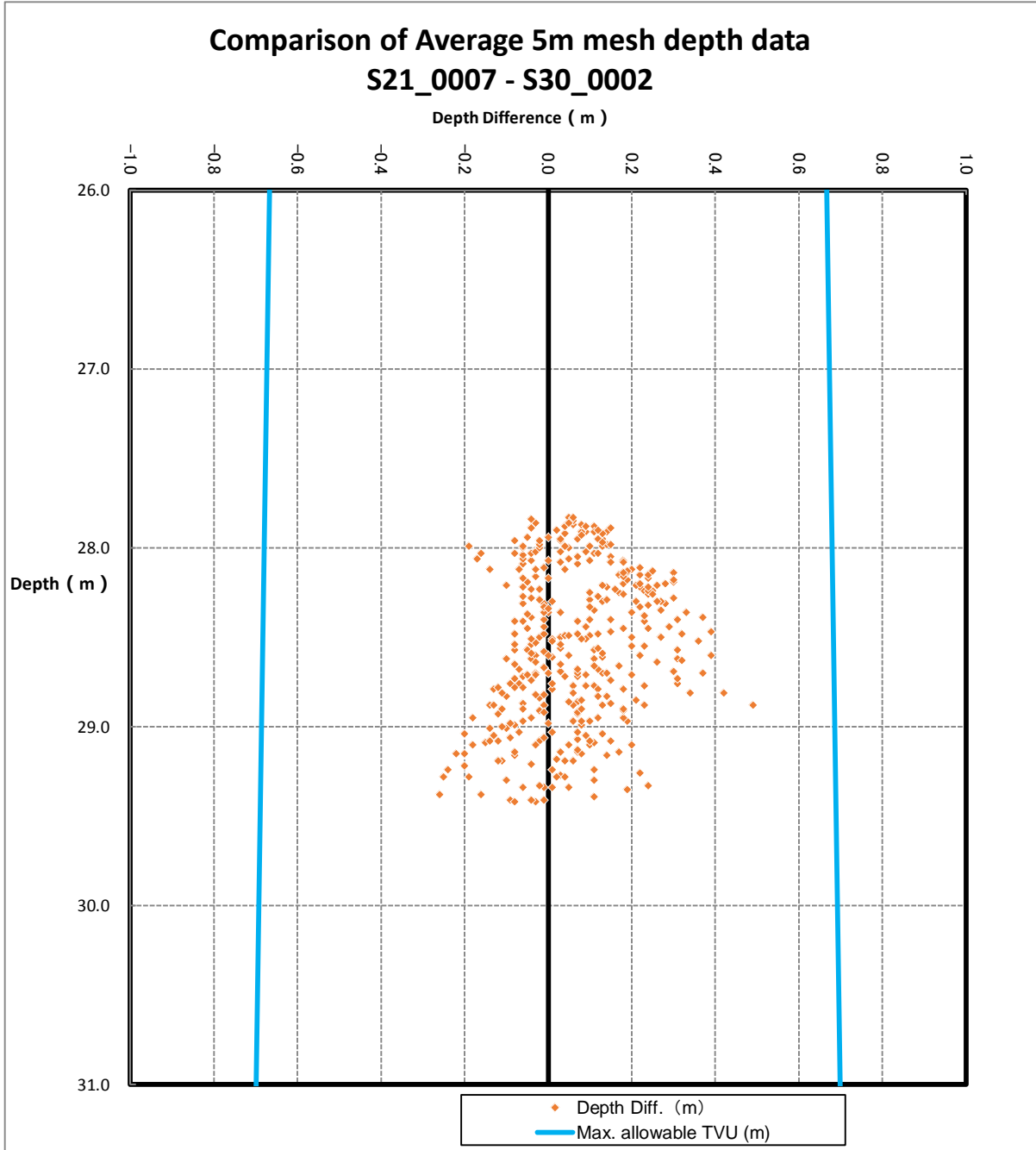


Multi-beam Echosounder Data Inspection

No.175

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S21\_0007  
 S30\_0002  
 Number of data 374

Number of valid data : 374 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.05 m  
 Maximum allowable TVU :  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

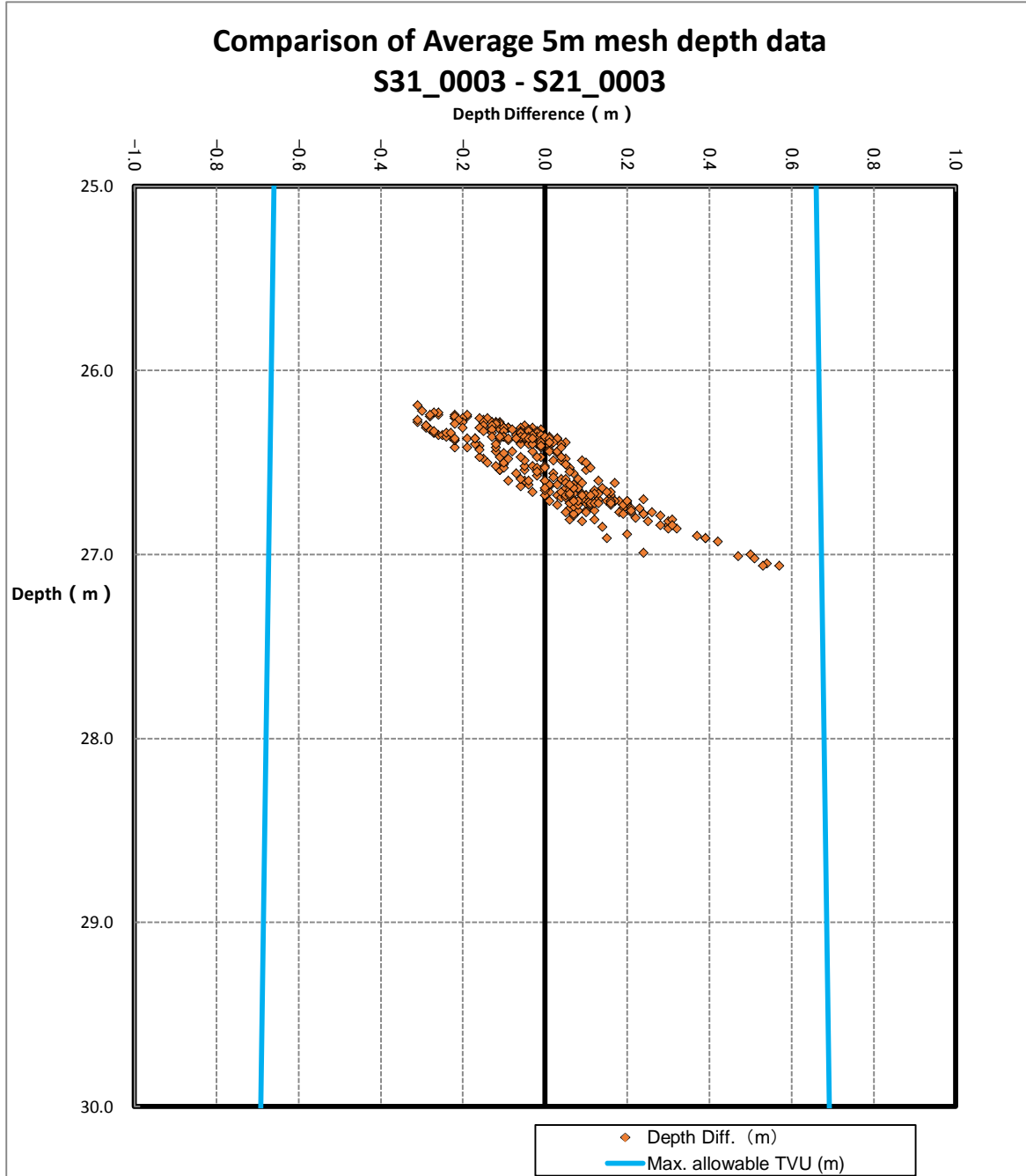


Multi-beam Echosounder Data Inspection

No.176

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : S31\_0003  
 S21\_0003  
 Number of data 330

Number of valid data : 330 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.00 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



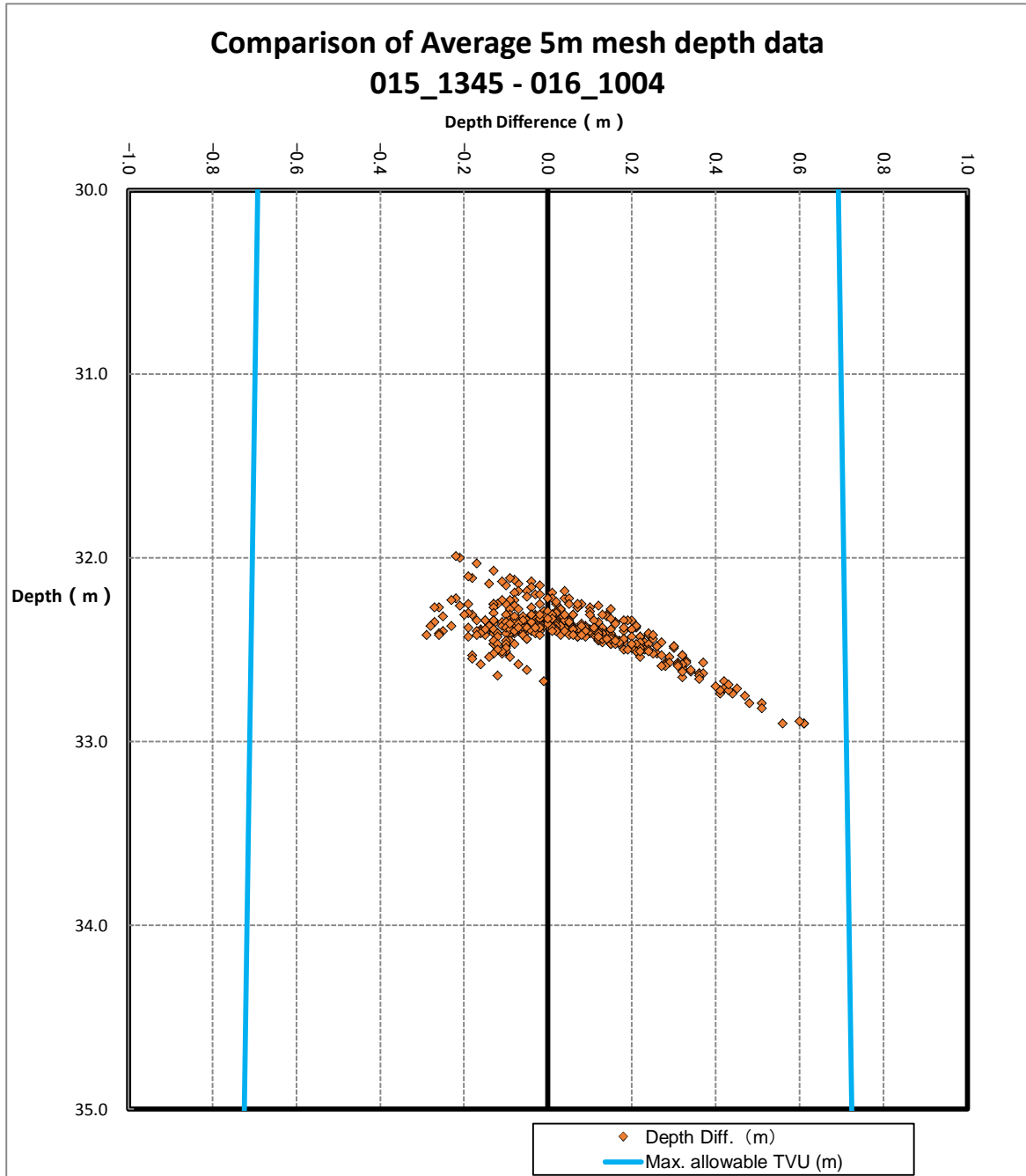


Multi-beam Echosounder Data Inspection

No.177

Area : Kampolnvalid Saom Bay Coastal and Approach  
 Order : 1a  
 Survey Line : 015\_1345  
 016\_1004  
 Number of data 399

Number of valid data : 399 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : 0.06 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

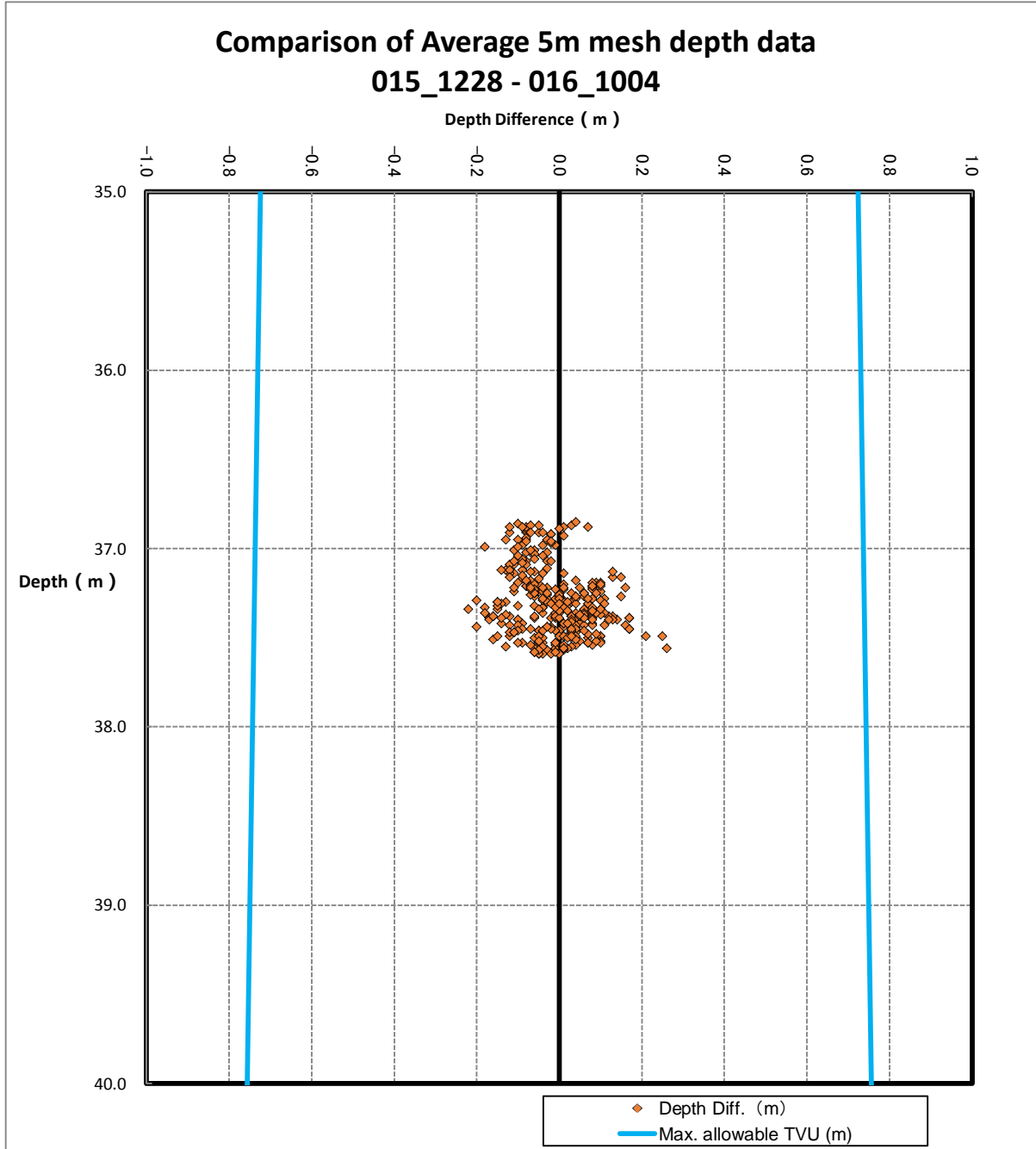


Multi-beam Echosounder Data Inspection

No.178

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 015\_1228  
 016\_1004  
 Number of data 320

Number of valid data : 320 100.00%  
 Number of invalid data : 0 0.00%  
 Mean Difference : -0.01 m  
 Maximum allowable TVU :  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

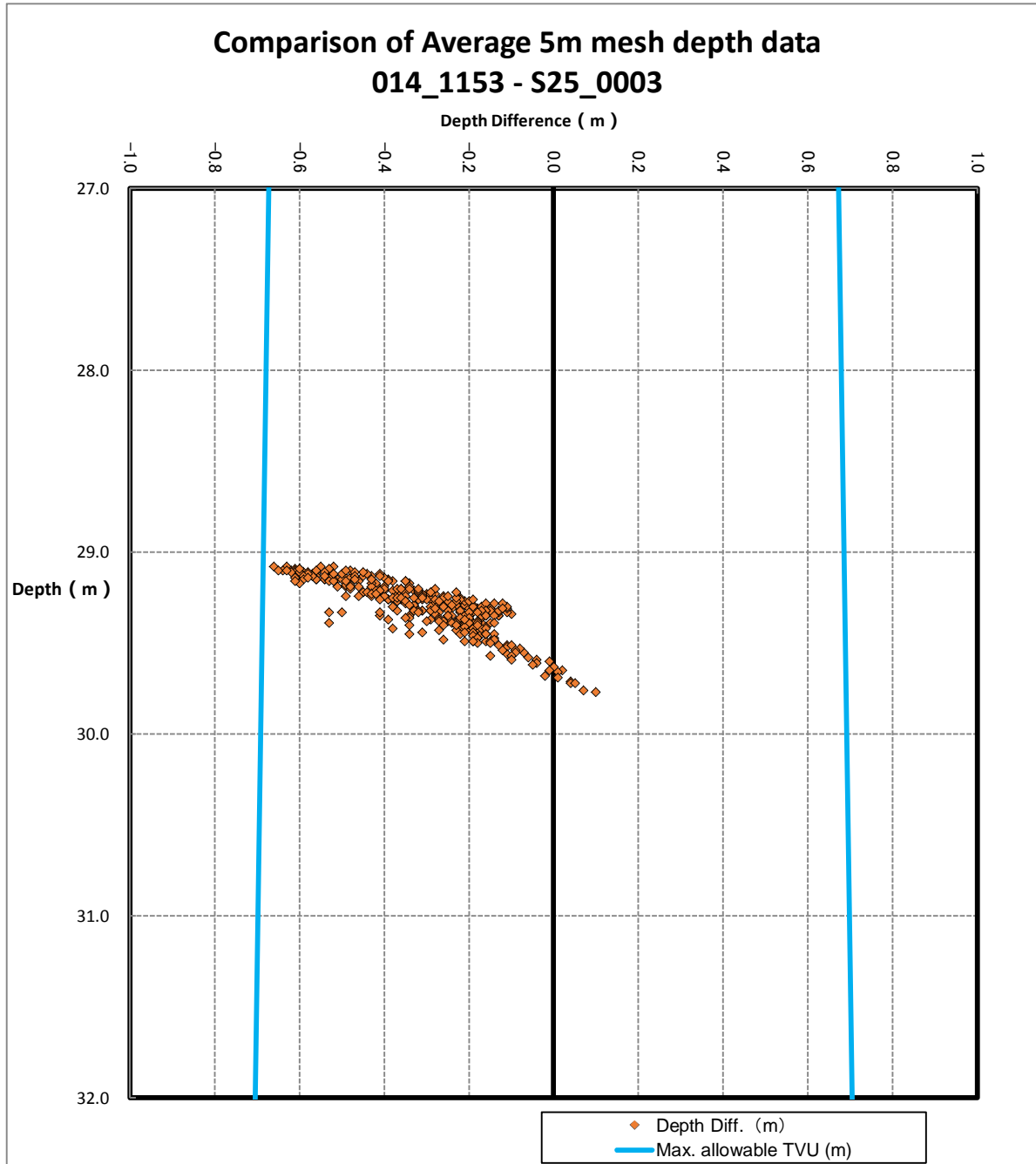


Multi-beam Echosounder Data Inspection

No.179

Area : Kampolnvalid Saom Bay Coastal and Approach  
 Order : 1a  
 Survey Line : 014\_1153  
 S25\_0003  
 Number of data 350

Number of valid data: 344 98.29%  
 Number of invalid data: 6 1.71%  
 Mean Difference: -0.30 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

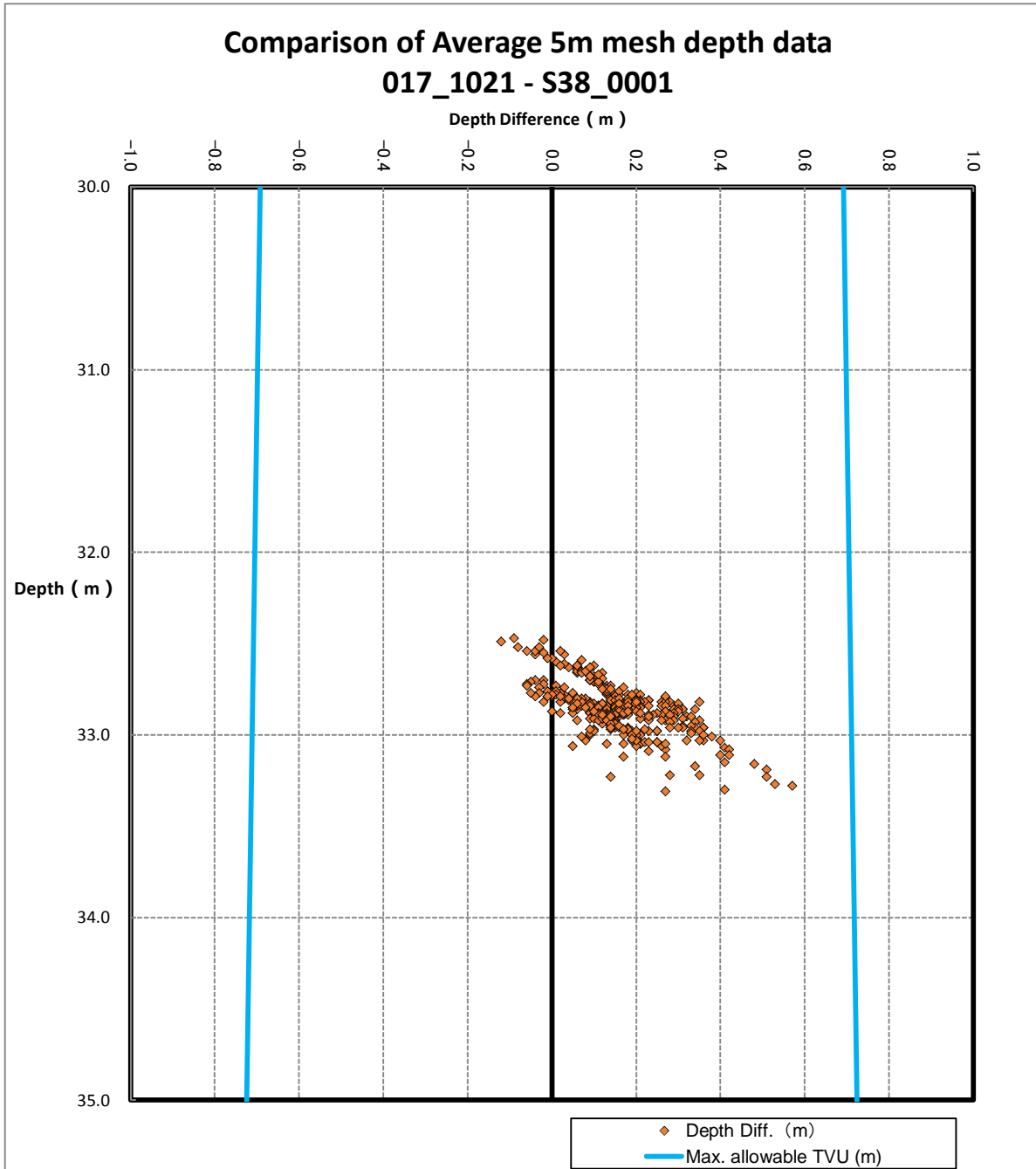


Multi-beam Echosounder Data Inspection

No.180

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 017\_1021  
 S38\_0001  
 Number of data 385

Number of valid data: 385 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: 0.15 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

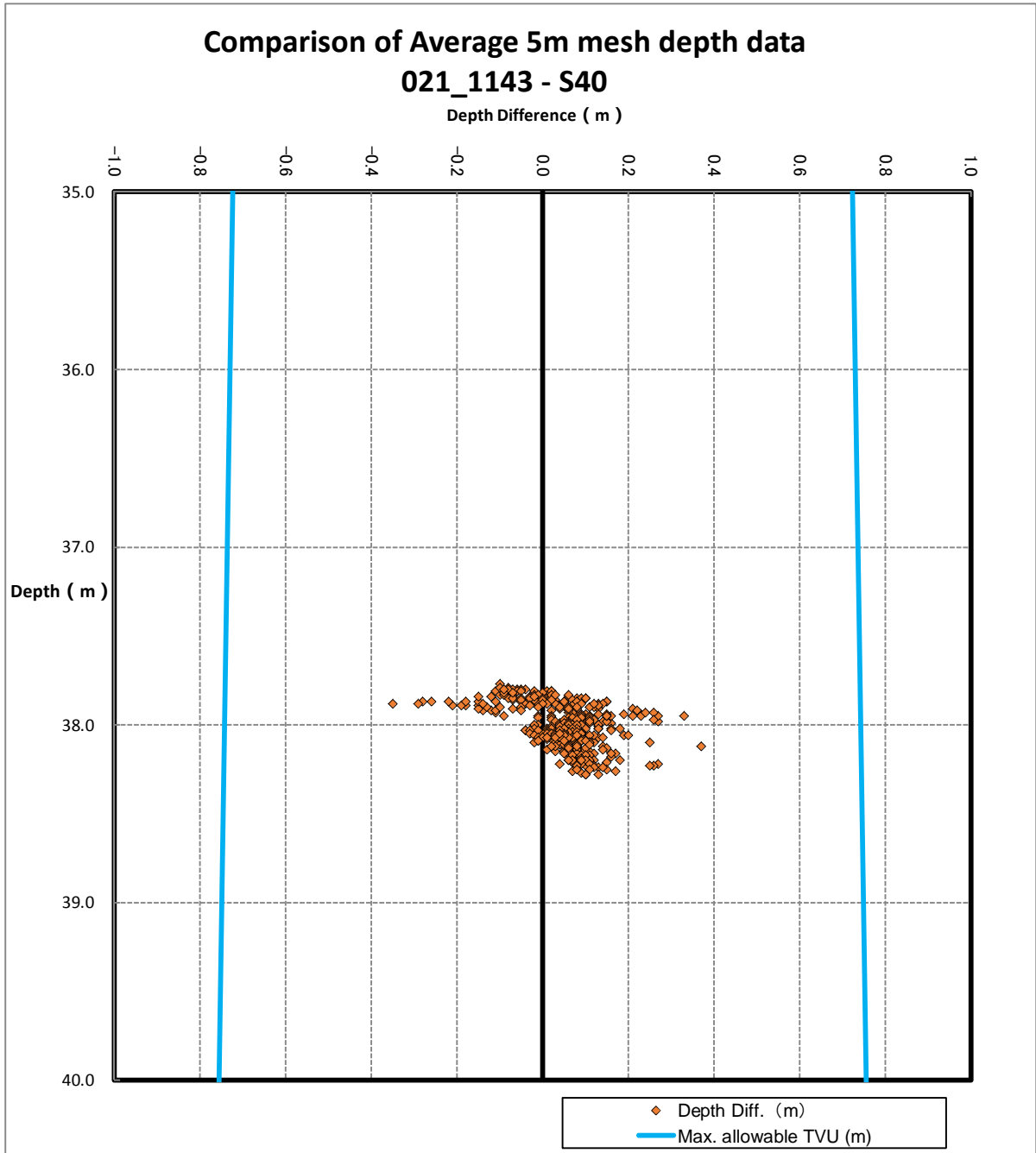


Multi-beam Echosounder Data Inspection

No.I81

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 021\_1143  
 S40  
 Number of data 400

Number of valid data: 400 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: 0.05 m  
 Maximum allowable TVU:  $\pm\sqrt{a^2+(b*d)^2}$   
 a = 0.5 b = 0.013  
 d = depth

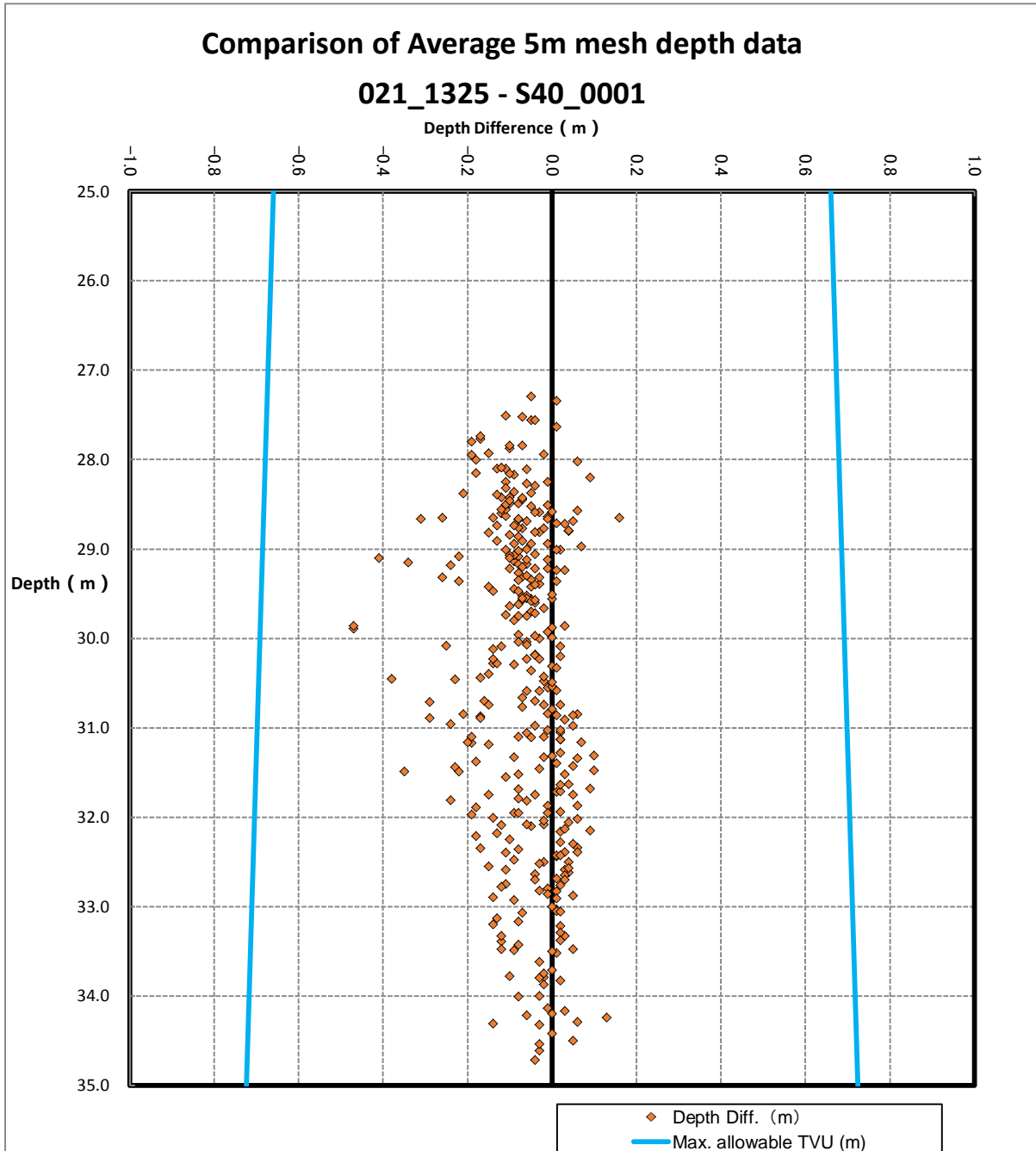


Multi-beam Echosounder Data Inspection

No.I82

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 021\_1325  
 S40\_0001  
 Number of data 351

Number of valid data: 351 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: -0.06 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth



Multi-beam Echosounder Data Inspection

No.183

Area : Kampong Saom Bay Coastal  
 Order : 1a  
 Survey Line : 021\_1325  
 S40\_0001  
 Number of data 284

Number of valid data: 284 100.00%  
 Number of invalid data: 0 0.00%  
 Mean Difference: 0.10 m  
 Maximum allowable TVU:  $\pm\sqrt{(a^2+(b*d)^2)}$   
 a = 0.5 b = 0.013  
 d = depth

