National report of Japan

Geodesy and Solid Earth Geophysics for 2013-2014

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VLBI:

1. Syowa participated in 6 sessions (OHIG 82, 83, 84, 85, 86, 87) in 2013, and 3 sessions (OHIG 88, 89, 90) in February 2014. The data (Hard Disks) in 2013 were taken back to Tokyo by April 2014.
2. A new hydrogen maser was set up and is functioning since February 2014.
3. Raw data for 5 sessions (OHIG83-87) were transferred to the Bonn Correlator via NiCT Kashima Center. Time series of baseline length between Syowa-HartRAO, Syowa-Hobart26, Syowa-O'Higgins are downloadable from the website at http://ccivs.bkg.bund.de/quarterly/baseline.

GPS:

1. The IGS/SYOG receiver was replaced by a multi GNSS receiver in January 2014, and 1Hz data streaming started from August 2014.
2. Regional network campaigns on outcropped bedrock area (red circles in Map 1 of page 3) around Lützow-Holm Bay, were made during the 2012/2013 and 2013/2014 summer seasons. Unmanned GPS systems (solar with ECaSS or lithium-ion batteries) have been operated at four sites (see also Map 2).
3. Ocean tide measurements using GPS-buoys were conducted from February to December 2013 at Nisi-no-ura Cove (Syowa Station).
4. Three-dimensional GPS measurements were carried out on Honnor Glacier from December 28, 2012 to February 3, 2013 (Green circle in Map 1).

SG:

1. There was no problem in the operation of OSG#058 during 2013-2014.The gravimeter has almost zero drift and 0.05 μGal SD ground noise level.
2. The SG data from OSG#058 (1 minute sampling data and their graphs) are downloadable from the NIPR website at http://polaris.nipr.ac.jp/~open-sg/.

AG

1. Absolute gravity measurement using A-10#017 was carried out in North Shelter of Princess Elisabeth Station (PES) at December 8, 2013. It was also conducted on an outcrop rock Selungen near the Asuka Station at December 5, 2013.

BPG/OBP:

1. Because of thick sea ice covering Nisi-no-ura Cove, the maintenance/calibration was made in February 2014.
2. An additional BPG will be deployed at Nisi-no-ura Cove on January 2015 by the JHOD team.
2. OBP was recovered from (66˚50'S, 37˚50'E) point; the total records attained 9 years 2 months (December 2004 – February 2014).

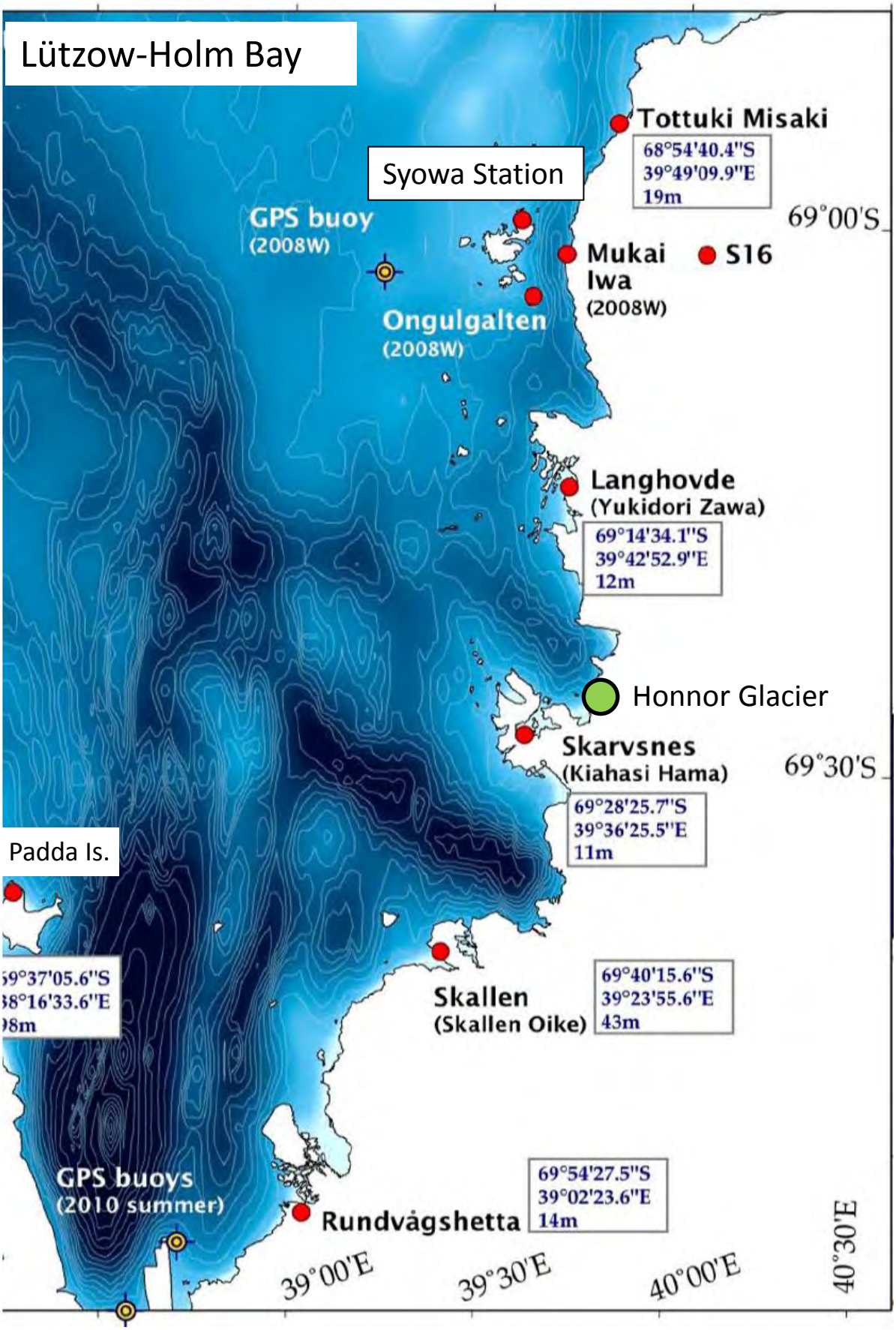
DORIS:

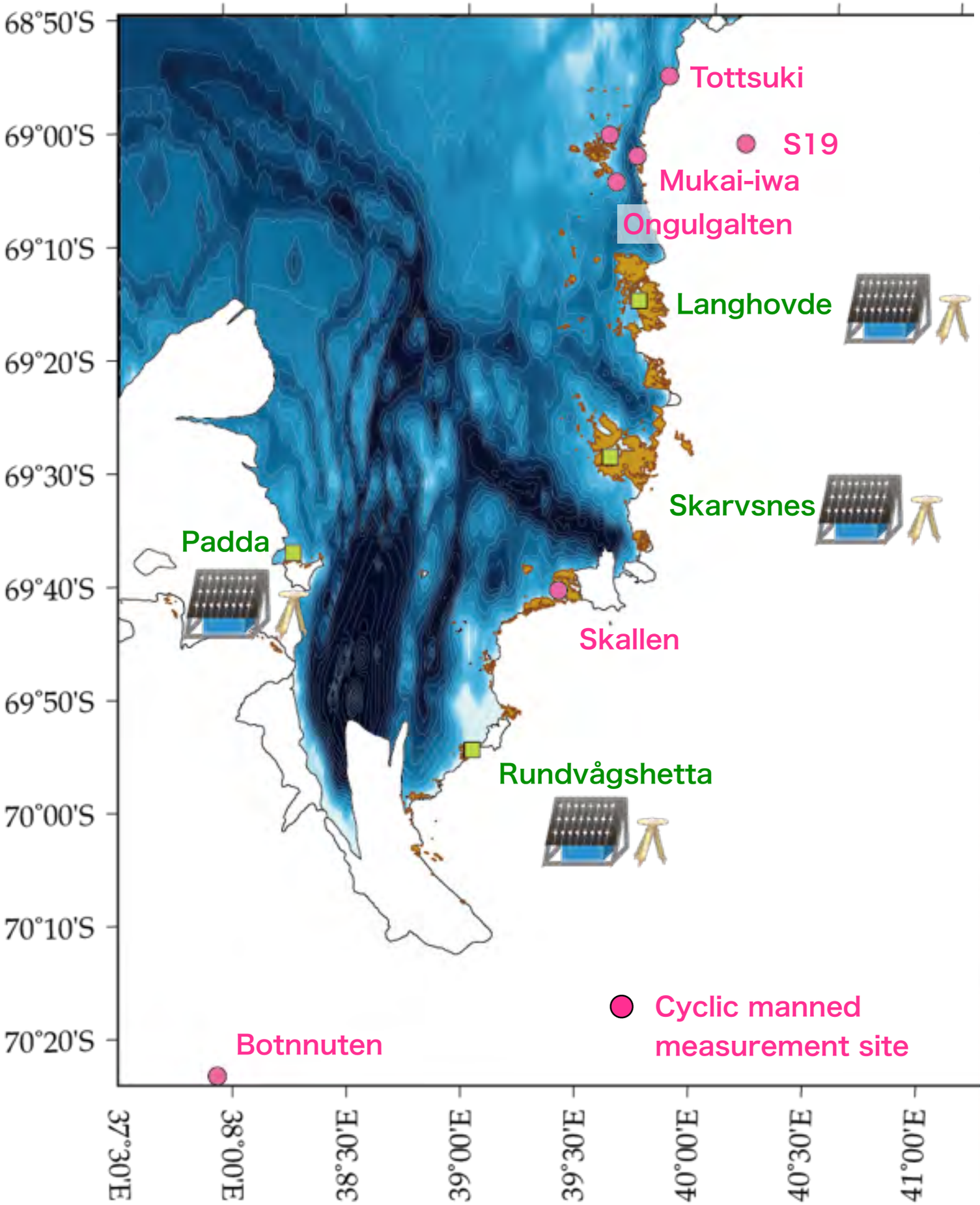
1. Since January 2008, a second-generation beacon has been operating normally at Syowa SYPB; the data are downloadable from http://ids-doris.org/network/ids-station-series.html.
2. Since the intensity of 2 GHz beacon became weakened from the end of February 2011, the beacon antenna was replaced at the end of January 2014. Local tie survey was carried out simultaneously between the new antenna and SYOG by an expedition member from the GSI.

STS-1:

1. There was no problem in the operation of STS-1 three components broadband seismometer during 2013-2014.
2. As for data access, contact M. Kanao at NIPR (kanao@nipr.ac.jp).

Map 1: GPS sites on outcrop rocks
Map 2: Unmanned GPS sites and the system configuration


Lützow-Holm Bay
Tottuki Misaki
68°54'40.4"S
39°49'09.9"E
19m
Syowa Station
GPS buoy
(2008W)
69°00'S
Mukai
Iwa
(2008W)
S16
Ongulgalten
(2008W)
Langhovde
(Yukidori Zawa)
69°14'34.1"S
39°42'52.9"E
12m
Honnor Glacier
Skarvsnes
(Kiahasi Hama)
69°30'S
69°28'25.7"S
39°36'25.5"E
11m
Padda Is.
69°37'05.6"S
38°16'33.6"E
98m
Skallen
(Skallen Oike)
69°40'15.6"S
39°23'55.6"E
43m
GPS buoys
(2010 summer)
Rundvågshetta
69°54'27.5"S
39°02'23.6"E
14m
39°00'E
39°30'E
40°00'E
40°30'E



Unmanned GPS measurement system on bare rock

Automatically 24 hours measurement every month by measurement controller and capacitor (ECaSS) or Lithium-ion rechargeable battery (7.4V, 300Ah).