National Report of Japan

Recent activity on geographical information of Japanese Antarctic Research Expedition (JARE)
by
Geospatial Information Authority of Japan (GSI)
National Institute of Polar Research (NIPR)
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Ongul Islands

Main part of Syowa Station
Mapping Activities (GSI)

- Precise topographic survey
  - To obtain detailed topographic data around Syowa Station, GSI conducted terrestrial laser survey, simple aerial photography and installation of photogrammetric targets at part of Syowa Station area.
◆ Mapping Activities (GSI)

- Update of topographic information (Update of large-scale topographic information)

  • By using aerial photographs taken from a helicopter and results of terrestrial laser survey data during the field work in the Japanese Antarctic Research Expeditions (JARE) on January 2015 and February 2016, GSI developed the latest ortho-images and precise elevation data around Ongul Island and updated 1:2500 topographic map data.
Mapping Activities (GSI)

Update of topographic information (Update of large-scale topographic information)

- 1: 2500 topographic maps and ortho-images in 2017: the southeast region of West Ongul Island (Nishi Ongul To) (5 sheets)
- 1: 2500 topographic maps and ortho-images in 2015: East Ongul Island (Higashi Ongul To) (4 sheets)
- Terrestrial laser survey

Future plan: the southwest region of West Ongul Island (Nishi Ongul To) (5 sheets)
An example of large-scale topographic map

1: 2500 topographic map “Central Part of Zakuroishi Kyuryo”
Mapping Activities (GSI)

♦ Update of topographic information (Update of small-scale topographic information)

• By using Digital elevation model (DEM) developed during the JARE Phase VIII (FY2010-2015), documents such as the gazetteers by Antarctic Place-Names Committee, and space observation technology (ALOS satellite images, Global Maps, etc.), GSI updated small-scale topographic information about Japan's observation area to the latest version.
Coverage of updated small-scale topographic information

Coverage of 1: 50000 Antarctic topographic maps developed in 2017: Yamato Mountains region (6 sheets)

Coverage of 1: 250000 Antarctic satellite image maps developed in 2016: Mizuho Plateau and Amundsen Bay regions (6 sheets)

Coverage of 1: 50000 Antarctic topographic maps developed in 2018 (Future plan): Riiser-Larsen (4 sheets)

Coverage of 1: 250000 Antarctic satellite image maps developed in 2018 (Future plan): Kemp Land (3 sheets)

Coverage of 1: 250000 Antarctic satellite image maps developed in 2017: Dome Fuji region (5 sheets)
An example of the 1: 250000 Antarctic satellite image map

1: 250000 Antarctic satellite image map “Amundsen Bay, South”
◆ Release of geospatial information (GSI)

- Outcomes obtained from the above-mentioned activities are released on GSI website.

  ➢ http://www.gsi.go.jp/antarctic/index.html
High resolution DSM by UAV aerial photography (NIPR)

- A high resolution DEM has made over Syowa Station from aerial photos pictured using a fixed-wing UAV (sensFly eBee plus) in 2017/2018 austral summer season. Because the fixed-wing UAV equips a high precision GNSS receiver, we can make accurate DSMs without GCPs.

Ortho-mosaic image over Syowa Station

Derived Digital Surface Model
Thank you for your attention.