Progress in Chinese Antarctic Geographic Information

LI Fei, AI Songtao, XIAO Feng

Chinese Antarctic Center of Surveying and Mapping, Wuhan University

Pisa, June 3, 2019
Outlines

1. Updated Antarctic map
2. Regional large scale maps
3. Geographic infrastructure
4. Voyage line of fixed-wing Xueying 601
5. Resource-sharing Platform of Polar Samples
1. Updated Antarctica Map

Using multi-data sources (BEDMAP2, IBCSO, COMNAP-Station) a latest Antarctica Map was updated, with more stations, more precise information.
Sand table of the Antarctica

3D-printer bedrock and surface of Antarctica
Topographic maps with the scale of 1:50 000, which covered 195 000 km², were acquired from ZY-3 satellite images with no ground controls. The areas include Prince Charles Mountains, Zhongshan Station, Taishan Camp, Grove Mountains, Amery Ice Shelf, Victoria Land, etc.
Topographic map for Zhongshan Station from ZY-3

Aerial mosaic of UAV image around Zhongshan
Topographic map for Zhongshan Station from UAV

- Data sources: historic aerial images from UAV
- Resolution: 20 cm in 2008 and 2012, 10 cm in 2017
Data sources: RTK-GPS data collected in 29th and 30th CHINARE

RTK tracks, the along track distance is 4 km, the across track distance is 500 m
Mosaic and topographic map for PANDA transect

- Data sources: Worldview/REMA, Landsat/LIMA
- Contour interval: 200 m
- Placename sources: Composite Gazetteer of Antarctica, Chinese Antarctica gazetteer

Optical image mosaic with contour lines
2018-2019, oblique photogrammetry+RTK were conducted over protect area in Inexpressible Island using UAV. The flight height is 300 m, and the sideoverlap is 65%.
3. Geographic infrastructure

GNSS infrastructure
(BDS、GPS、GALILEO、GLONASS)
Guide Robot coupled with GPR
4. Flight voyages of fixed-wing Xueying 601
Aircrafts & vessels

Coming soon…

www.chinare.gov.cn
5. Resource-sharing Platform of Polar Samples

The Resource-sharing Platform of Polar Samples was established by Polar Research Institute of China (PRIC) and Chinese National Arctic & Antarctic Data Center (CN-NADC).
Biology Depository

Space distribution

Statistics of updated samples

201 in 2018
Snow-Ice Depository

Space distribution

Statistics of updated samples

58 in 2018
Rock Depository

Space distribution

Statistics of updated samples

30 in 2018
Deep-space Depository

Space distribution

Statistics of updated samples

600 in 2018, 60 in 2019
Sediment Depository

Space distribution

Statistics of updated samples

37 in 2018, 11 in 2019
Welcome to China
Thanks for your attention
Guide Robot coupled with GPR