IBCSO 2.0:
A collaborative effort towards improved bathymetric information

Second Seabed 2030 Arctic – Antarctic – North Pacific

Mapping Meeting 2019
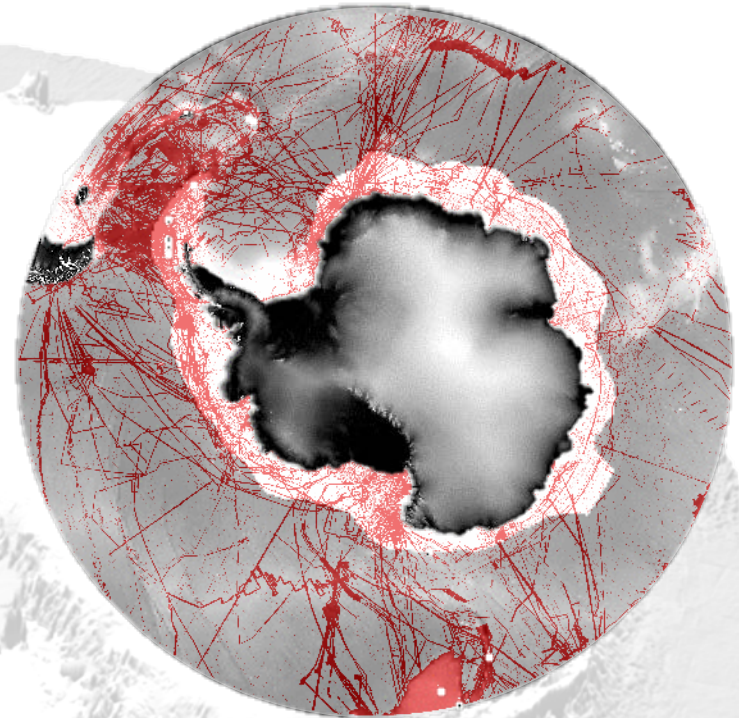
University of New Hampshire

9 – 10 Nov

Laura Hehemann, Boris Dorschel, Sacha Viquerat, Simon Dreutter
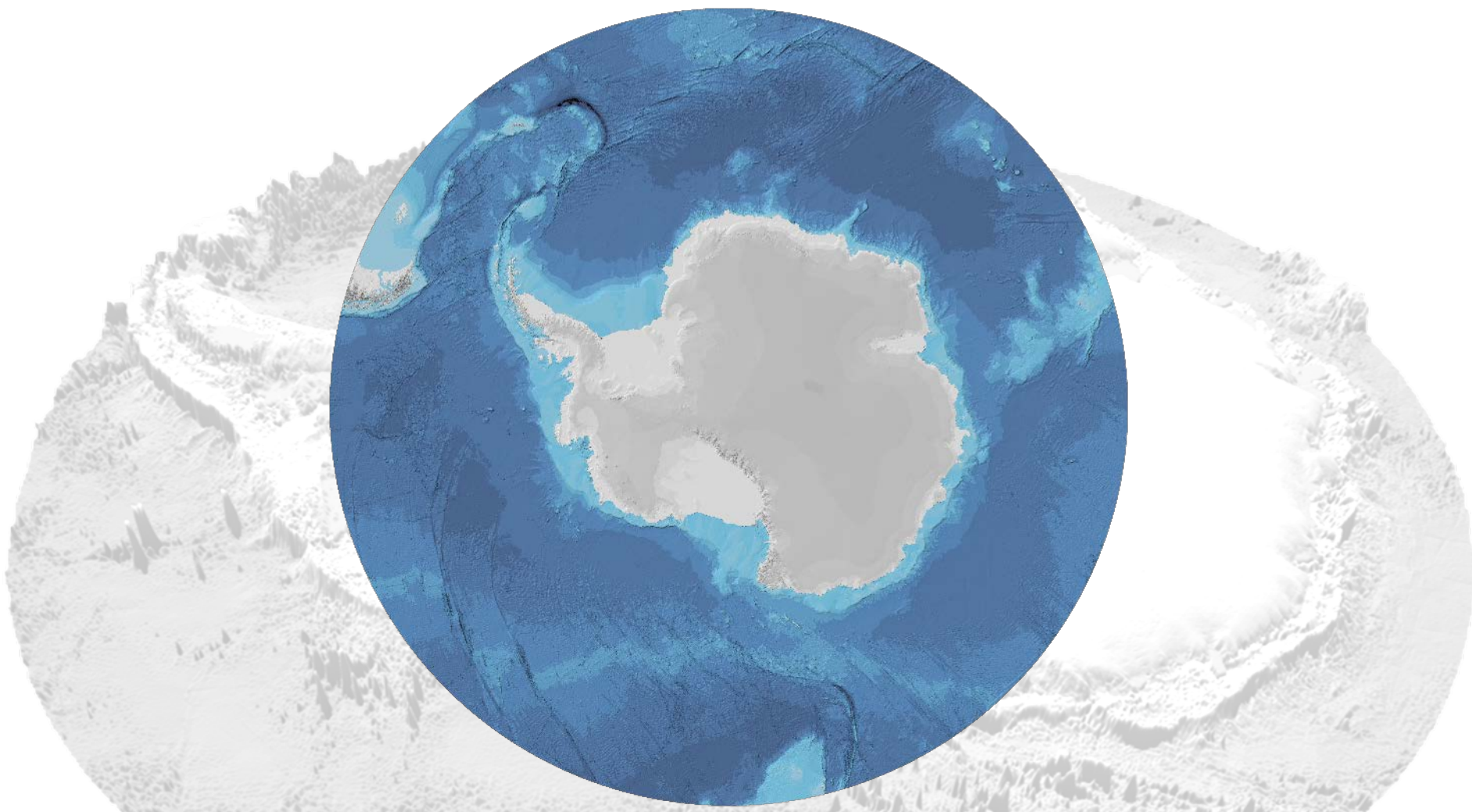
Grid Data Sources

- Background bathymetry: SRTM15+

- Bathymetry datasets: processed, raw data preferred

- Sub-Antarctic topography: SRTM15+, ADD, Peter Fretwell (BAS)
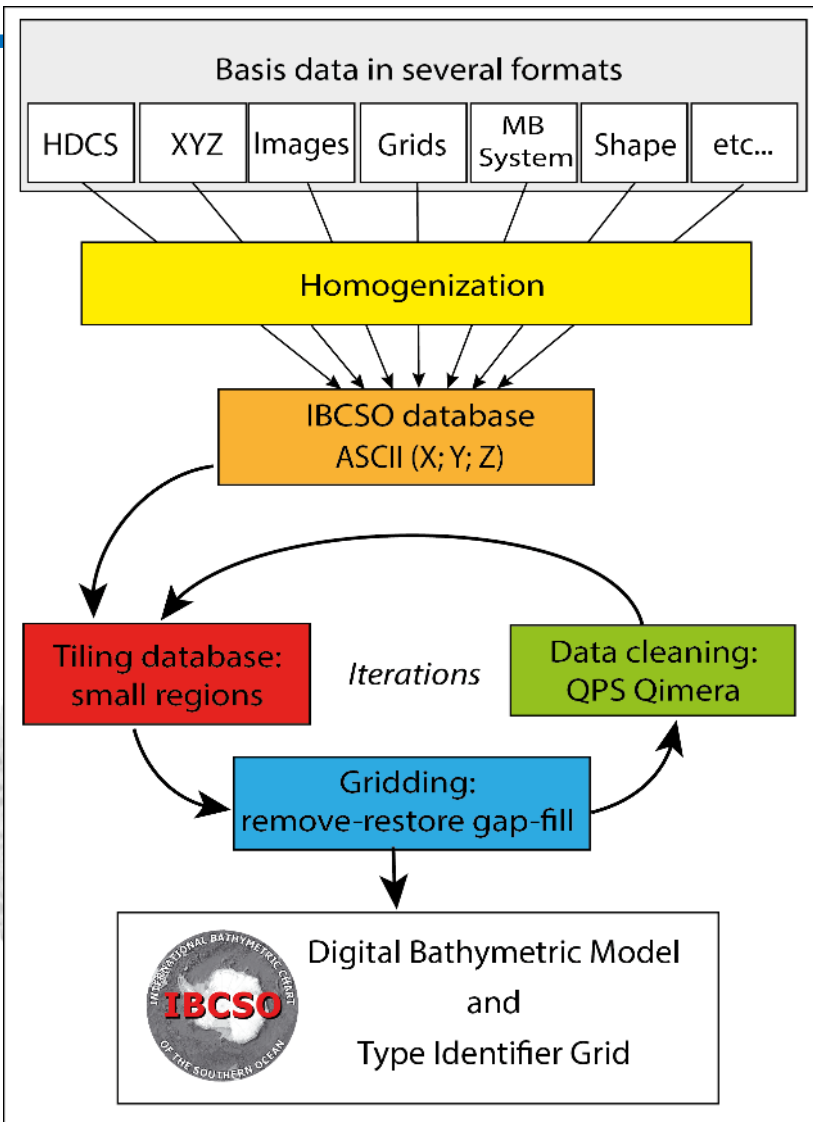
- Antarctica: BedMachine 3

Preliminary Grid Jan-2019

Previous Infrastructure

Scripts and programs

New Infrastructure

Basis data in several formats: HDCS, XYZ, Images, Grids, MB System, Shape, etc... → Homogenization → IBCSO database ASCII (X;Y;Z) → Tiling database: small regions, Iterations, Data cleaning: QPS Qimera → Gridding: remove-restore gap-fill → Digital Bathymetric Model and Type Identifier Grid

- Database on a remote computer
- Automated scripts
- Metadata in MySQL database
- Utilizing super computer
- New interface

New Infrastructure

User Interface

– Facilitates new data import

– Allows management of metadata

– Serves as interface between mysql database and workflow

New Infrastructure

A. Homogenization

– Extracts only x, y, z columns from the processed raw data files and converts these to standardized output files

– Removes definite duplicates within one cruise

– Collects extent and min/max depth values **-> MySQL DB**

New Infrastructure

B. Tiling

- – Assigns data to smaller regions (25km x 25km)
- – Data cleaned & flagged (Qimera)
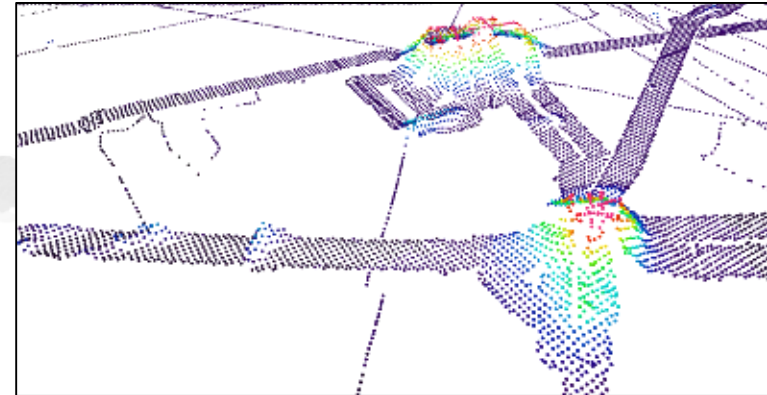- – Shapefile created of tiles per cruise
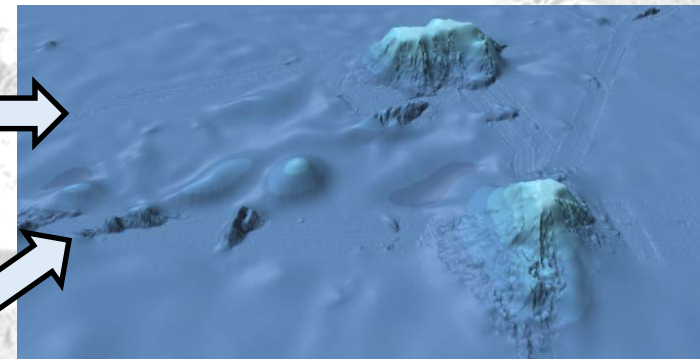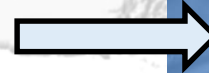- – Lists tiles to edit
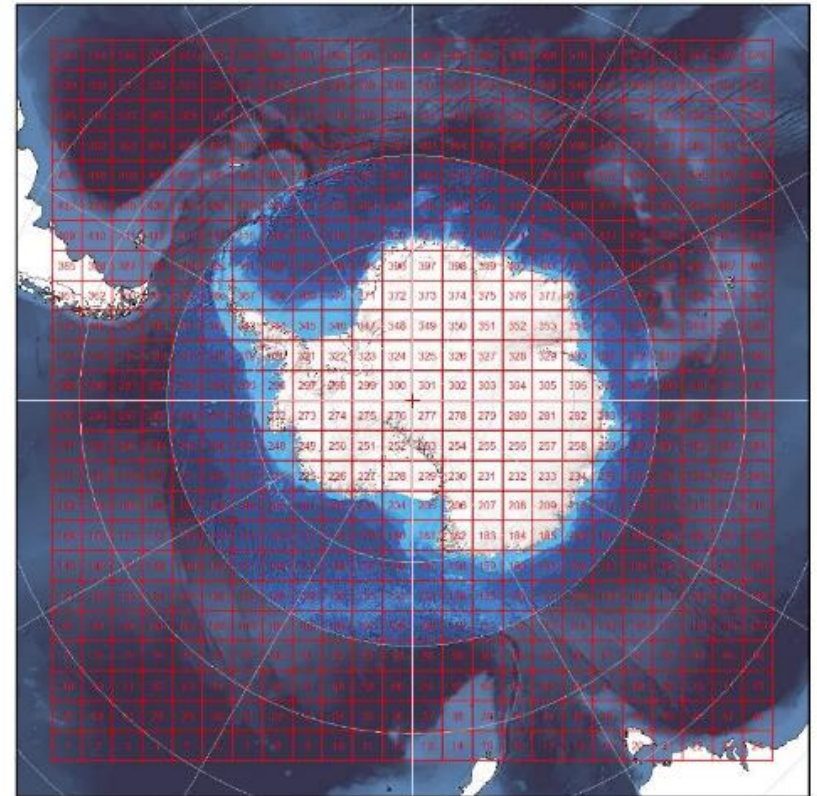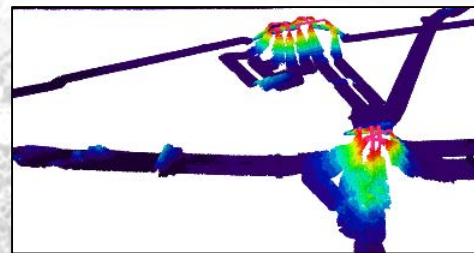
New Infrastructure

C. Weighted block median
 – 500m X 500m window

D. Gridding
 – Spline under tension
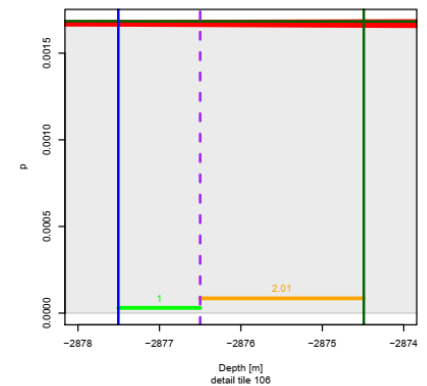 – Gapfill

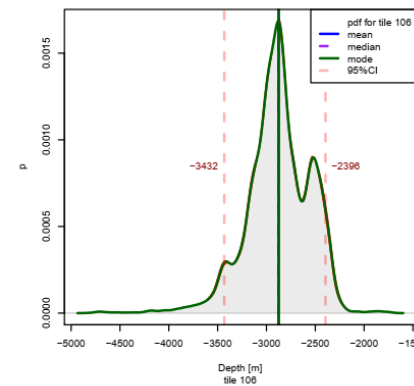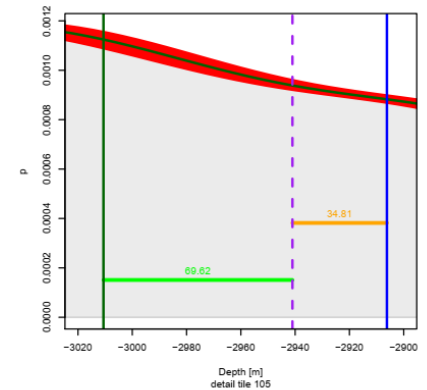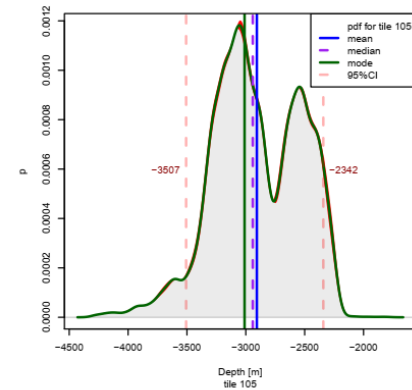

Predicted
bathymetry
(from SRTM15+)

New Infrastructure

E. Automated reporting on block median

- PDF output per tile and/or complete grid

- TID percent cover

- Summary statistics
  - median, mean, mode, and 95% CI of depth
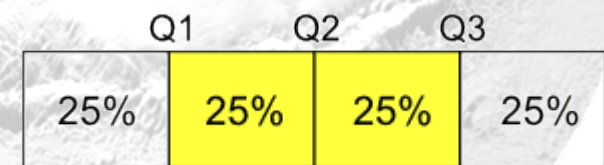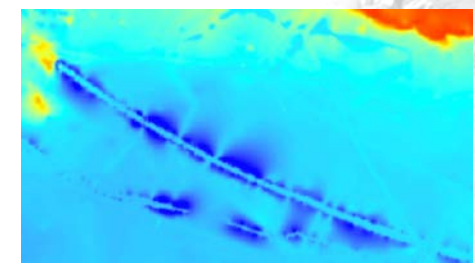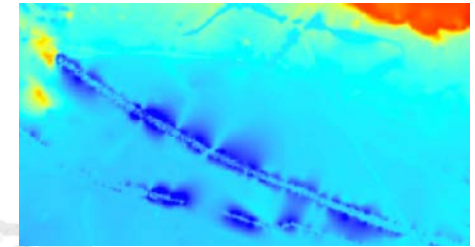
- Backlog of previous grids

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2019-07-15_16_36_48_profile_data.csv	7/15/2019 6:48 PM	OpenOffice.org 1....	189 KB
2019-07-15_16_36_48_ScriptProfiling.pdf	7/15/2019 7:10 PM	Foxit Reader PDF ...	42 KB

Products

- Sampled surface of minimums & 25% quartiles

- Sampled surface of block median (50% quartile)

- Sampled surface of maximums & 75% quartiles

- SD / Variance per blockmedian window

Thank you!