

UPGRADING INTERFEROMETRIC MODELS OF EUROPEAN TWGs WITH ALTIMETRY DATA

Aleksey I. SHAROV, Sven ETZOLD

ISO 9001:2000 certified

JOANNEUM RESEARCH
Forschungsgesellschaft mbH

Institute of
Digital Image Processing

Aleksey I. Sharov

Sven Etzold

Wastiangasse 6
A-8010 Graz, Austria

Phone: +43 316 876-17 45
Fax: +43 316 876-17 20

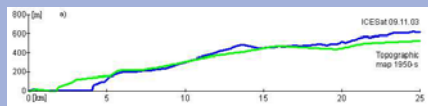
aleksey.sharov@joanneum.at
http://dib.joanneum.at

OBJECTIVES

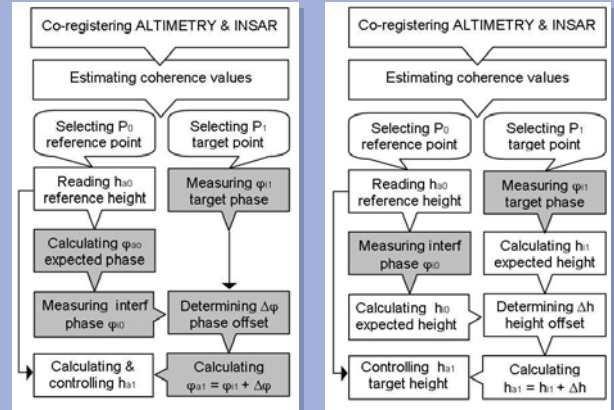
- GEOCODING & MOSAICKING INSARMS
- HEIGHT & VELOCITY MEASUREMENTS
- INTERCALIBRATION & VALIDATION
- ICE DISCHARGE MODELLING AT TWGs
- FULL-VALUE MAPPING OF TWG DYNs

DATA

- 14 ERS-1/2-INSAR TAND. PAIRS 1995/96
- 210 ICESat GLA06 (L1B) DATA TRs 2003
- TOPO- & HYDROGRAPHIC MAPS



ALGORITHMS

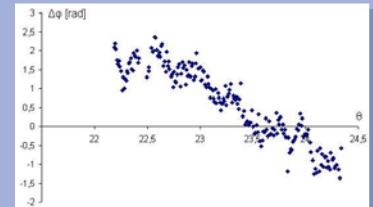


$$\Delta\varphi_1 \cong \Delta\varphi_0 = \varphi_{a0} - \varphi_{i0}$$

$$\Delta h_1 \cong \Delta h_0 = h_{a0} - h_{i0}$$

Calving flux:

$$\Phi \approx \rho \cdot L \cdot (\bar{h} + \bar{\tau}) \cdot \bar{V}$$



European TWGs



Location of European Tide Water Glaciers



Somoylovich Ice Cap, Franz Josef Land

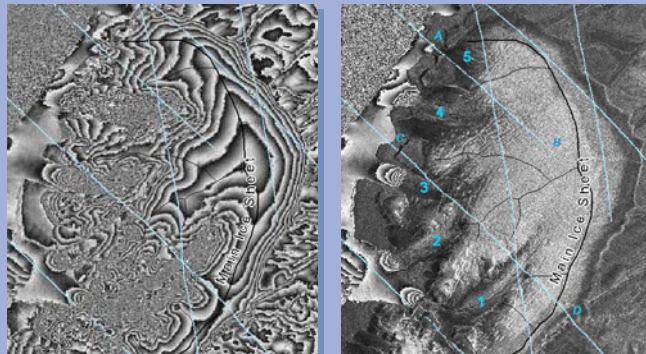


Rykachova TWG, north Novaya Zemlya



Typical longitudinal profiles

INSAR COMPOSITES & GEOCODED MS



TWG VELOCITIES

Glacier Name	INSAR velocity cm/day	Date
Aldousbreen	39.1 - 26.3	14/15.01.96 - 30/31.03.96
Basin No. 3*	65.3	07/08.11.95
Basin No. 18*	76.8 - 60.2	10/11.12.95 - 24/25.03.96
Duvebreen*	56.2	16/17.12.95
Frazerbreen	84.3	30/31.03.96
Idunbreen	63.8	30/31.03.96
Nilsenbreen*	23.0	16/17.12.95
Palanderbreen	10.0 - 13.4	14/15.01.96 - 30/31.03.96
Rijpbreen	35.1	16/17.12.95
Sabinebreen	< 3.0	16/17.12.95
Schweigaardbreen*	59.1	16/17.12.95
S. Franklinsbreen	9.7 - 20.2	16/17.12.95 - 30/31.03.96
N. Franklinsbreen	13.5 - 3.8	16/17.12.95 - 30/31.03.96

*) TWGs belonging to Austfonna Ice Dome

Research projects



SIGMA CryoSat AO No. 2611
INTEGRAL STREP FP6 GMES
http://dib.joanneum.at/integral

