Supporting Science in North and South America

AADN Status

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Americas ALOS Data Node
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Overview

• Data Distribution Status
• URSA Catalog Enhancements
• Software Tool Development
• AADN Announcements of Opportunity
• ALOS Research Examples
AADN has produced over 100,000 products since October 24, 2006

• Variable monthly production
• Increasing trend
AADN Production by Sensor

- PALSAR: 84%
- PRISM: 10%
- AVNIR-2: 6%
Data Utilization by Discipline

- Solid Earth: 44%
- Cryosphere: 16%
- Mapping: 17%
- Forestry: 22%
- Environment: 1%
- Land Use: 0%
AADN Partnerships

- Non-commercial distribution is provided by AADN and its distribution partners
  - AADN – All Users in North and South America
  - IBGE – Brazil
  - CONAE – Argentina
  - US Government Research Consortium – U.S.A.
  - University of Miami – U.S.A.
- Distributors provide standard data, value-added products, and specialized science support
- This network of distributors allows AADN to serve all users in Node region regardless of location or language
URSA at AADN

• URSA is the AADN’s tool for ALOS search, discovery, ordering and distribution

• Provides access to the AADN catalog
  – Search via multiple criteria (lat/lon, time, season, granule name, cloud cover, etc)
  – Complete metadata for all search results including browse images, when available
  – Export search results to Google Earth for visualization of frames
  – Distribution via DVD or FTP
URSA Capabilities

URSA supports ever-growing features

• Polar searches using customized Google Maps

• Support for JAXA global catalog coming - Nov 09
MapReady Tool Kit

Through MapReady’s GUI interface, the user is able to ingest a SAR image in its native format and process it to an orthorectified image in GeoTIFF format; ready to be used as a layer in a geographic information system (GIS).
MapReady Tool Kit
Version 2.2

• New Features Added:
  – Radiometric terrain correction
  – Perform Freeman/Durden, Pauli, Sinclair decompositions
  – Perform Cloude/Pottier H/A/alpha segmentations
  – Apply correction for Faraday rotation
  – Ability to ingest AIRSAR and TerraSAR-X
  – Ability to ingest GAMMA interferometry products
MapReady Tool Kit
Version 2.2

Mauna Kea: Pauli Decomposition overlaid onto AVNIR-2 image

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MapReady Tool Kit and PolSARpro

Geometric capabilities of MapReady are now coupled with polarimetric capabilities of PolSARpro

- MapReady can ingest .bin products of PolSARpro
  - All polarimetric products of PolSARpro can now be terrain corrected, projected, and exported as a GeoTIFF
- PolSARpro can now ingest terrain-corrected coherency (T3) matrices from MapReady
  - Polarimetric manipulations can now be made in ground range rather than slant range

Polarimetry and GIS are now integrated via free, open-source tools
MapReady Tool Kit and PolSARpro

Wishart HA Classification in Slant Range and Terrain-corrected to UTM

PolSARpro and MapReady Training Session: 1:30-5:00 PM Friday
Announcements of Opportunity

Summer 2006
- AO for University of Alaska Researchers
- Over 650 scenes provided

Spring 2007
- AO for University of Alaska International Polar Year (IPY) Postdocs
- 10 scenes offered to each of 13 IPY Postdocs
Announcements of Opportunity

Spring 2009

Americas AO

- Open to college or university faculty and students, members of non-governmental organizations, college-level and K-12 educators, and others involved in the non-commercial use of remote-sensing data
- 540 scenes offered to 34 researchers from North and South America

ALOS Geoscience Abstract Competition

- Open to all University of Alaska graduate students enrolled during the 2009 calendar year
- Five runners-up received 10 ALOS scenes in support of described research
Announcements of Opportunity

Winner is Melanie Engram, a UAF grad student

- Provided with data to complete her project and travel expenses to attend ALOS PI Symposium
- "Estimating methane ebullition from northern lakes using L-band SAR backscatter with comparison to C-band SAR"

Wednesday 10:20-10:40 AM, Floods and Wetlands II
ALOS Research Examples
SAR Wind Measurements from PALSAR Wide Beam

Coastal Ocean Applications
Demonstrations of ALOS-PALSAR Imagery for NOAA CoastWatch,
William G. Pichel, Frank Monaldo,
Christopher Wackerman, Christopher Jackson, Xiaofeng Li,
Pablo Clemente-Colón,
4:20-4:40PM Wednesday
Semi-automated Delineation of Glaciers for GLIMS

Using ALOS PALSAR Coherence to Delineate Glacier Extent,
D.K. Atwood, F. Meyer, and A. Arendt, 10:40-11:00AM Wednesday
Improved Coherence for Water Level Measurement

ALOS vs Radarsat
InSAR
Southern Louisiana

Radarsat-1: 3/4-28, 2004 10 km

ALOS: 02/27-4/14, 2007

Integrated Analysis of Interferometric SAR and Radar Altimeter for Quantifying Absolute Water Level Changes and Wetland Dynamics,
Jin-Woo Kim, C. K. Shum, Motomu Ibaraki, Hyongki Lee, Sang-Ho Baek, Faisal Hossain, John W. Jones, Zhong Lu,
9:00-9:20 AM Wednesday
Sumatra Volcano
Triggering Experiment

Seeking correlations between earthquakes and volcano deformation

Courtesy of Estelle Chaussard and Falk Amelung
Monitoring Pan-Tropical Forest Degradation

Pan-Tropical Forest Mapping with ALOS PALSAR, Josef Kellndorfer, Francesco Holecz, Wayne Walker, Jesse Bishop, Tina Cormier, Greg Fiske, Katie Kirsch, 2:20-2:40 pm, Tuesday
Measuring Ionospheric Effects on Amplitude and Phase

Correction Methods of Ionospheric Signals in L-band SAR Data,
F. Meyer, 8:20-8:40 AM, Friday
Thank You

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