



La Agencia Espacial Argentina



Comisión Nacional de
Actividades Espaciales

WORKING GROUP 3: DATA EXPLORATION

Laura Frulla

❓ Initial Topics

Common test sites

Maximizing data exploitation, airborne campaigns, cross-validation

Standards or common development for data processing

Computational efficiencies and challenges

Roadblocks to fusion and assimilation

❓ Recommendations for the 1st and 2nd Workshop were received

WG-3: Data exploration

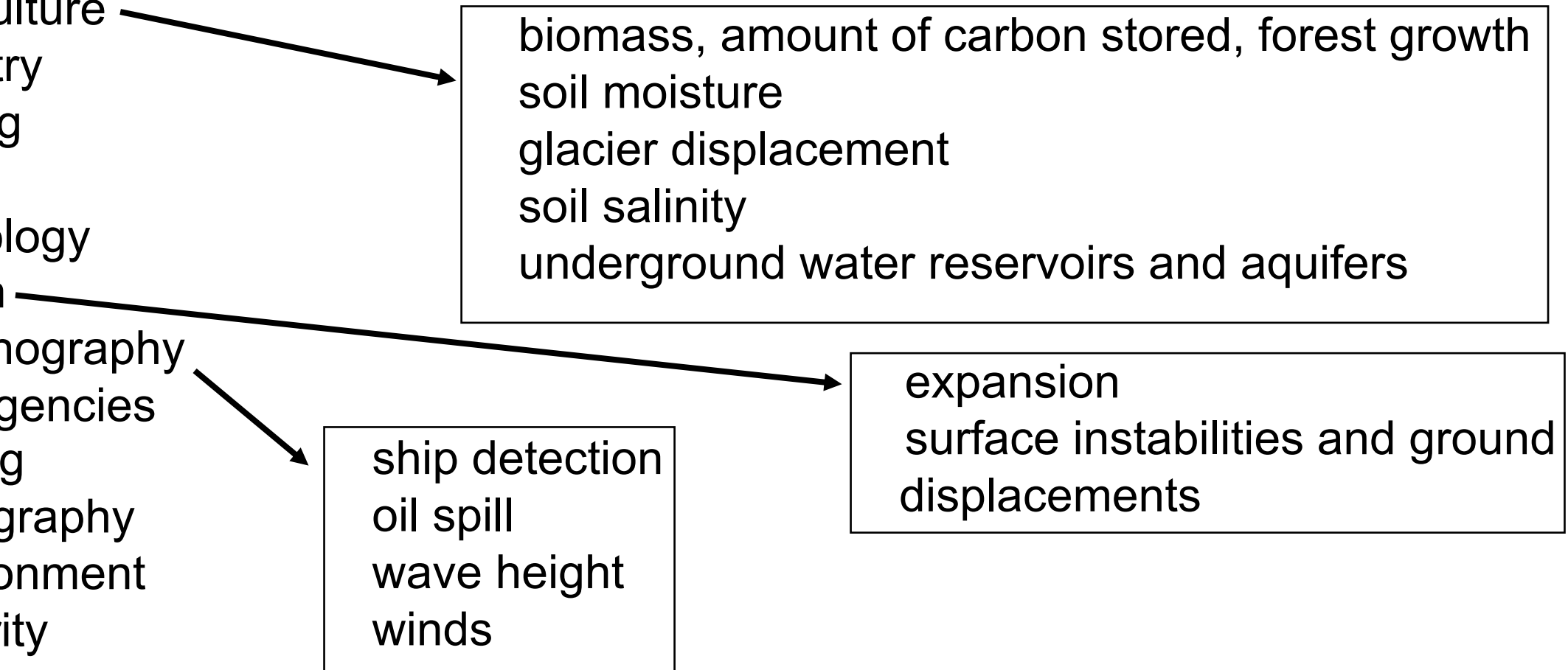
- coordination agreements between space agencies should include the collation and provision of regional and global bio- and geo-physical in situ data relevant to SAR science products
- space agencies should provide long-term support for installation and maintenance of SAR image calibration arrays
- multi-sensor and multi-agency calibration campaigns should be coordinated over the same natural and artificial target sites
- free and open sharing of all calibration/validation data and results should be provided through a single, reliable and long term data archive
- the community should foster validation of high level image products
- the use of cloud platforms should be promoted to facilitate research and development of data assimilation and data fusion

- Needs and opportunities associated with sensor and bio-geophysical data to support SAR calibration and validation were identified
- The next phase should involve the implementation of the recommendations
- To fully implement the recommendations of WG3 additional resources were needed which were outside the resource scope of most of the participants willing to contribute.

Data exploitation, data fusion and data assimilation working on the line of cal/val, but with level 2 data

☐ Topics of interest and the corresponding bio-geophysical parameters:

- agriculture
- forestry
- fishing
- snow
- hydrology
- urban
- oceanography
- emergencies
- mining
- cartography
- environment
- security
- health



biomass, amount of carbon stored, forest growth
soil moisture
glacier displacement
soil salinity
underground water reservoirs and aquifers

expansion
surface instabilities and ground
displacements

ship detection
oil spill
wave height
winds

Data exploitation, data fusion and data assimilation working on the line of cal/val, but with level 2 data

- ❓ Level 2 product generation per application:
 - Potential bio-geophysical parameter identification to be estimated from SAR acquisitions
 - Identification of the satellite data type more suitable for each case
 - Identification of the most suitable models existing and to be used. How to improve the actual models?
 - Application of artificial intelligence and machine learning technologies for product generation, including new technologies in data fusion and data assimilation
 - Application of techniques of super-resolution and multi-temporal analysis
 - Synthetic data generation:
 - Data Augmentation: creating synthetic training data to improve the performance of deep learning models, especially in cases where real data is limited
 - Scenario simulation: Simulate different future scenarios to assess impacts or failures

☐ Cal/Val for the different topics:

- identify super-sites
- generate:

measurement standardisation procedures

validation plans for maintenance, including simultaneous acquisitions

procedures for in-situ instruments maintenance

□ co-chairs team :

- Carlos Lopez
- Danilo Dadamia
- Laura Frulla
- Other representative of an Agency

¡Muchas Gracias!

lfrulla@conae.gov.ar