



→ **POLINSAR 2013**

The 6th International Workshop on Science and Applications of SAR Polarimetry and Polarimetric Interferometry

# Summary Report for PolInSAR Session

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# Seed Questions

- Temporal decorrelation remains a challenging issue for PolinSAR studies and some proposed missions. Recent work has helped to characterize and mitigate its effects particularly at L-band and P-band. Is there still a need for additional controlled experiments? If yes, what would these be?
- Forest structure/elevation measurements still remain a key focus of polarimetric-interferometry. Is the robustness of these techniques fully characterized between full polarizations and compact polarization modes of operation? If not, what remains to complete this characterization so that this trade space can be dealt with in a quantitative fashion?
- Community tools like POLSARPRO have played an integral role in helping new and experienced researchers develop familiarity with polarimetric interferometry. What major enhancements would most benefit the community both from a data processing and modeling perspective (answers should encompass tomography and multi-baseline interferometry)?
- What are the major gaps in data, airborne and spaceborne, that are limiting continued progress?

# PolInSAR Session Report

- Temporal decorrelation remains a challenging issue for PolInSAR studies and some proposed missions. Recent work has help to characterize and mitigate its effects particularly at L-band and P-band. Is the there still need for additional controlled experiments? If yes, what would these be?
- *The consensus was that scatterometer experiments like the P-band TropiSCAT experiments coupled with modeling are answering many of the issues needed to understand and characterize temporal decorrelation. It was suggested that a similar experiment at L-band would be desired.*
- *Recent work in mitigating temporal decorrelation is interesting, however the community felt that this work is still in its nascent stages and much work still be remains in this area.*
- *Consequently, controlled experiments are desirable, but there seems to be no immediate consensus what these could be.*

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- *For single baseline PolInSAR there exists a rigorous performance model for quantifying the compact versus full polarization modes.*
  - *Multi-baseline studies exist but further refinements are possible.*
- *Applications, like biomass estimation, still require additional studies to determine when compact pol can be effectively substituted for full polarization measurements.*
  - *Should consider compact pol observables in their own right without a priori biasing with respect to full polarimetric analog measurements.*

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- Community tools like POLSARPRO have played an integral role in helping new and experienced researchers develop facility with polarimetric interferometry. What major enhancements would most benefit the community both from a data processing and modeling perspective (answers should encompass tomography and multi-baseline interferometry)?
- *One tool the community thought would be very useful is a tool that will automatically co-register stacks of data either in the radar slant plane or data that has been geo-coded.*
- *This tool needs to work at a fraction of pixel and should be not sensor specific.*

# PoInSAR Session Report

- What are the major gaps in data, airborne and spaceborne, that are limiting continued progress?
- *The idea of supersites with commensurate ground truth, airborne and spaceborne data was suggested. Examples included Marc Simard' website and ESA data sets for campaigns like TropiSAR.*
- *Specifics and how this could be realized in a more uniform and systematic fashion need to be developed if this is ever to come to fruition.*
- *Another (similar) idea mentioned is to establish one or few standard data sets for comparing the performance of competing algorithms on a common base. Such data could serve as a long-term reference for evaluating new approaches (compare: "Lena" image in image processing)*