iISCE: Integrated InSAR Scientific Computing Environment on the Cloud

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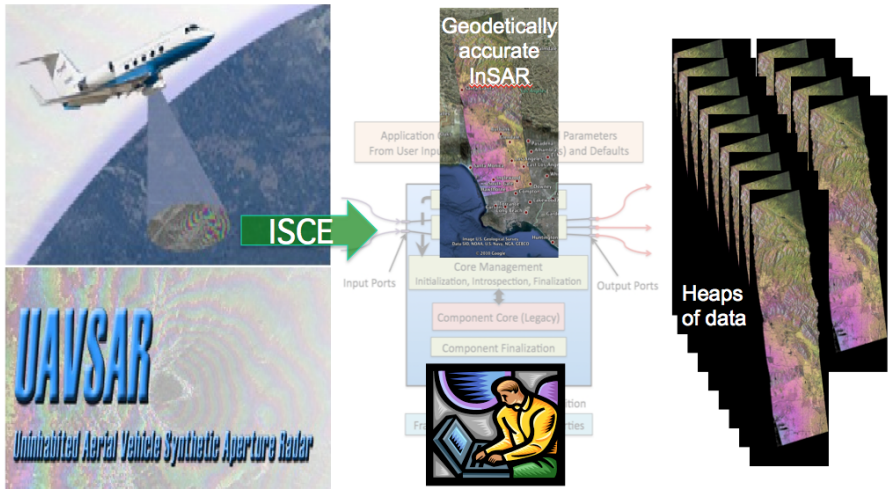
Objective

- Extend the ISCE software toolkit to support UAVSAR data formats and metadata
- Extend the ISCE framework to enable the seamless handling of extremely large data files
- Extend the ISCE framework with enhanced processing capabilities supporting UAVSAR scientists, including PolInSAR capabilities and 3D vector estimation
- Develop UAVSAR-specific data manipulation tools that enhance the utility of UAVSAR data for science users, including segmentation and decimation tools suited to precision interferometry



Production of geocoded deformation fields from UAVSAR interferograms and stacks of single look complex images via ISCE

Accomplishments

- Coordinated needs and requirements with UAVSAR project to develop an effective interface between UAVSAR products and ISCE
- Developed UAVSAR image readers for the ISCE workflow, for both individual interferometry pairs and stacks
- Developed a generalized Doppler model for ISCE that supports both UAVSAR data and more-complex-than-typical spaceborne imaging radar data
- Developed UAVSAR image segmentation and resampling tools to allow users to selectively process smaller study areas of interest for faster processing
- Adapted the ISCE workflow for stack processing
- Conducted an ISCE UAVSAR training session at the October 2014 UAVSAR workshop using NASA CMAC EarthKit technology
- iISCE adopted as core processing software for the NISAR mission
- iISCE now supports key ASF products (over 1,000,000 radar scenes) and is fully compliant with international processing standards

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$TRL_{in} = 5$ $TRL_{out} = 6$