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Title: The SRTM Mosaic Processor
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Abstract:
The Shuttle Radar Topography Mission radar processor produces high-resolution (15m) image, height, and correlation data in a coordinate system natural to the strips acquired along the SRTM ground track. These overlapping data strips must be combined and interpolated onto the more familiar geographic latitude/longitude grid for the final output DEM. In addition, there may still be small, long wavelength residual errors in the strip data that may be reduced by incorporating tiepoints and ground control points. The Mosaic Processing Subsystem of the SRTM processor accomplishes both of these tasks. Continent-scale bundle adjustment is done by a sequential least-squares algorithm which derives corrections to the baseline length and differential phase by forcing tie points to the same position and strip data heights to the GCP values at the GCP position. Output DEM values are derived from nearby strip values, weighted by their inverse local height variances. Continent-scale simulation results will be presented to validate the performance of the algorithms.