

First Light Imagery of the K&C PALSAR Africa Mosaic

Project Objectives

The long-term project objective is the compilation of a mosaic of PALSAR dual-polarization observations over the whole African continent. Target specifications will include precision geo-coding (Range-Doppler algorithm) with terrain correction using an SRTM derived digital elevation model, radiometric revision for inter-strip balancing, and representation in an un-projected geographic coordinate system with a grid spacing of 0.0004 degrees (roughly 50 m at the equator). The product is based on hundreds of strip slant range detected data, provided by JAXA using the SIGMASAR processor.

A first prototype mosaic including only imagery of the Madagascar island (documented in this poster) was developed as a test bed for setting up the whole computational engine, and for the accuracy assessment (geometric and radiometric) of the target K&C Africa PALSAR continental scale mosaic.

Results

In the prototype development phase several technical problems had to be tackled, comprising: generation of a suitable large coverage, high resolution and spatially regular digital elevation model starting from available products (e.g. SRTM); modification of the geocoding range-Doppler algorithm to take into account the squinted geometry of the JAXA strip data sets; verification of the geometric accuracy and geometric fidelity in high topography areas; radiometric revision for correcting dependences of backscatter on incidence angle; mosaicking algorithms including a global minimization of radiometric discrepancies in overlapping areas.

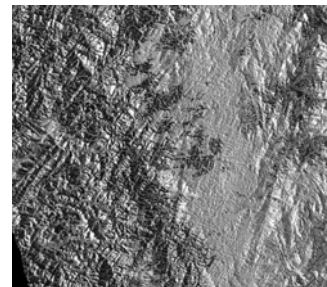
Results obtained at this stage, in tight collaboration between the JRC, JAXA and SARMAP, allow us now to start the operational phase where the final PALSAR K&C radar mosaic over the whole African continent will be assembled. Forecast delivery date is November 2008.

K&C Members

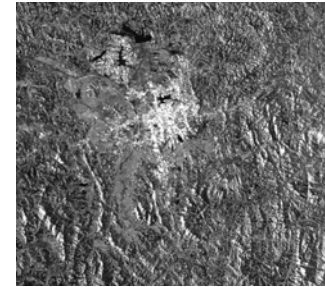
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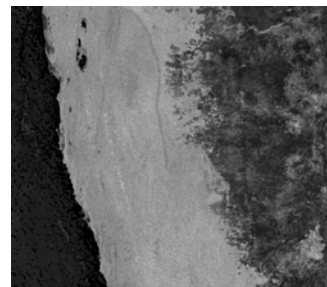
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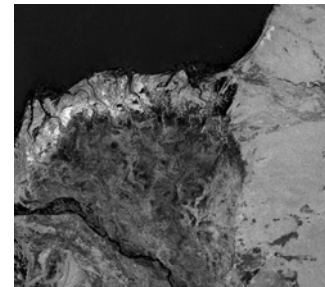
1) Deforestation areas



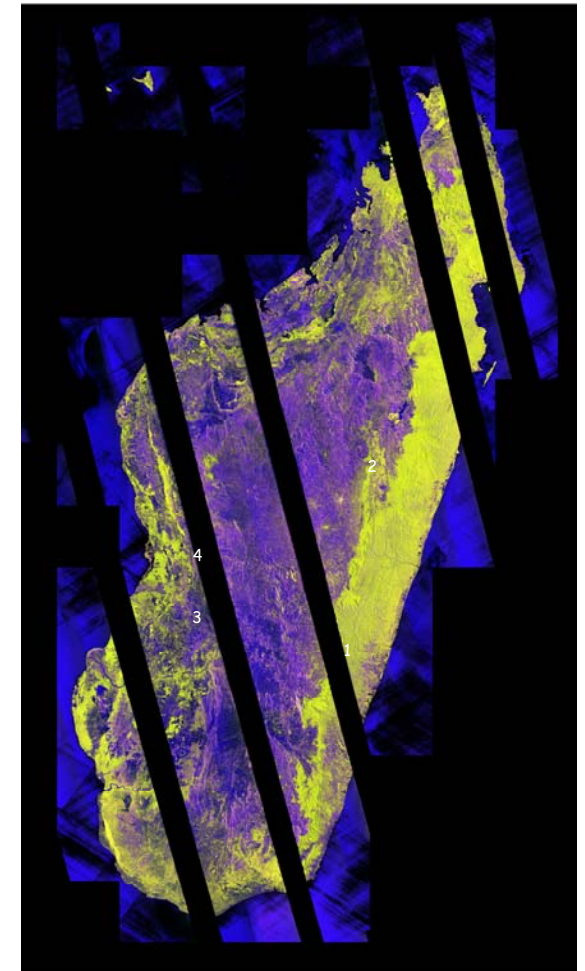
2) Urban areas (Antananarivo, capital)



3) Agricultural areas in dry forest



4) Mangroves and dry forest areas



Colour Composite of HH (Red), HV (Green),
ratio HH/HV (Blue)

