

SOUTH AMERICAN RADAR EXPERIMENT (SAREX-92) IN THE CARAJAS MINERAL PROVINCE (BRAZILIAN AMAZON REGION): DATA ACQUISITION AND PRELIMINARY RESULTS

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The SAREX 1992 campaign based on C-HH and C-VV data was undertaken during April 92 in Carajas (Pojuca), Brazilian Amazon region. The main objective of the project in this test site is to test the capability of the SAR airborne data in various configurations (polarizations and incidence angles) to differentiate between litho-stratigraphic units and distinct types of tropical rain forest vegetation. An evaluation of RADARSAT (Nadir C-HH and wide-Swath- C-HH) and ERS-1 (Nadir C-VV) simulations will also be carried out. An area of 250 by 346 square km, from Tucuruí reservoir up to the Carajas mountain range was covered by 5 wide swath mode flights parallel to ascending/descending ERS-1 orbits and covering an area of 3000 square Km were also collected. Finally, a Narrow Swath mode flight parallel to the main geological structures in the area (N70W) and corresponding to 1.152 square km was collected. All this data set was corrected for geometric distortions and antenna pattern effects. A digital mosaic based on the Wide Swath data was produced at CCRS and will support the regional photo-geological interpretation (1:250.000) scale. The nadir and Narrow Swath mode data will be enhanced taking into account spatial and spectral attributes aiming at geobotanical classes and discriminations, lithological and structures mapping on detailed scale (1:50.000). Based on the preliminary analysis of the products available, the following conclusions are possible:

- 1- C-VV is better the C-HH aiming at the detection of phenological changes within the deforested section of the rain forest.
- 2- C-HH is better than C-VV in the detection of mining activities mainly cut horizontal bench strip mines;
- 3- Faults, joints and geological lineaments seem to be well detectable in both polarizations;
- 4- "Campos Rupestres" (grassland) and ferruginous laterite duricrusts, both related to iron deposits have presented a remarkable and distinct backscattering response in both polarizations.