Geophysical Research Abstracts
Vol. 13, EGU2011-6396, 2011
EGU General Assembly 2011

Monitoring global burned area trends from European satellites: the ESA FIRE CCI Project

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The Fire-CCI project aims to generate long and reliable time series of burned area (BA) maps using existing European satellite sensors. The project is part of the European Space Agency's Climate Change Initiative, and it is developed by a consortium of ten teams: University of Alcalá, INIA and GMV (Spain); GAF, DLR and Julich (Germany), IRD and LSCE-CEA (France), ISA (Portugal), and U.Leicester (UK).
The BA products will be based on level-1B and level-2 satellite data from (A)ATSR, VEGETATION and MERIS (both Reduced and Full Resolution). The project has started by undertaking a comprehensive assessment of user requirements, which will be the basis for defining the Product Specifications.
All input data will be pre-processed to improve existing calibrated products. More accurate geometrical algorithms will be tested, as well as more sophisticated algorithms for removing atmospheric effects for all sensors. Improved cloud masking as well as improved snow and ice detection will be implemented during pre-processing for all sensor data. Potential confusions of burned area detection with cloud shadows, topographic shadows and water areas will be minimized due to an improved identification of these pixels, also applied for all sensor data. Finally, improved burned area detection algorithms adapted to the climate modeling community will be developed.
The production of BA products for the 1995-2009 time series (the longest available) is planned for 10 specific, test sites. In addition, global mosaics for five years of data (1999, 2000, 2002, 2003 and 2005) will be produced. Each of those sites will be about 500 km x 500 km. The sites have been selected to demonstrate the consistency in the processing chain for the BA product outputs.
The sites were chosen to include the major ecosystems affected by fires, as well as areas previously reported as problematic for burned area mapping. Databases available on carbon emission from GFEDv3 have also been taken into account.