



CHAMBARA: The changing hydrography and man made biomass burning in Africa: a concept for earth observations from the International Space Station.

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In parallel to vegetation mapping exemplified by VEGETATION and spectral thematic instruments as MERIS, other important natural and man-made phenomena characterize the equatorial and low latitude regions region covered especially well by the International Space Station orbit. The agreement between the space agencies evolves now to a lifetime of the ISS up to 2025. Two themes can be proposed: hydrography and biomass burning. Hydrography has an extreme human importance as human life and agriculture depend on water, transport as well; also the hydroelectric energy which could be harnessed from the hydrological network is tremendous and would allow a sustainable development of the entire region.

The CHAMBARA proposed concept differs from other satellite observation programmes in a sense that the images are taken either according either to pre-planned scientific campaigns controlled from an operation centre either according to real time unexpected events or emergencies. For example, biomass burning imaging campaigns are organised at the end of the dry season, while deltas and lake are monitored at specific points of the dry seasons and, if the cloud cover allows it, at periods of the wet season. In exceptional cases, as natural disasters or rapidly varying scenes, the operation centre will reschedule the programme and even ask for exceptional crew assistance.

This project aims at this point to the European and African scientific communities specialized on Sub-Saharan Africa which is currently studied by several Belgian scientific institutions but its techniques could also be extended to the Amazon basin, tropical Asia and Oceania.

The equipment proposed will be an advanced true colour rapid camera, external mounting is wished in order to free the optical window but nadir pointing should be the nominal position.

An example of the concept is given by the serendipitous image ISS004E11 Central African observation (ISS photograph, May 16, 2002, centered near 8.6 degrees south latitude, 27.4 degrees east longitude, NASA document). This image is a unique representation of the start of a slash and burn process on several agricultural plots, it exemplifies the requirement for a rapid camera able to follow the evolution of plumes and other variable earth surface phenomena.

This communication describes the integrated concept proposed from image collecting operations to data distribution.