

GVM - GAC PROCESSING CHAIN : A REMOTE SENSING TOOL FOR ENVIRONMENTAL APPLICATIONS AT CONTINENTAL LEVEL

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Abstract

The importance for Europe of maintaining independent space-based systems for environmental monitoring in the post-Kyoto context is currently the subject of debate by the Commission Services, European space agencies and industry. This is in line with the concept of the Pioneer Customer outlined in the Commission's Communication on Space to Council and Parliament. Space Application Institute (SAI) is part of the partnership testing this concept and our work in the 5th Framework Program will provide important information on the definition, design and implementation of any such system.

In this context, "Global Vegetation Monitoring" (GVM) unit in SAI is in charge of "... the specification and implementation of dedicated observation systems (space and ground segments) that will meet the requirements for a reliable and accurate, space-based, global environmental information system for use by the European Commission..." This information system will be dedicated to monitor compliance with international treaties and conventions, in particular the Kyoto Protocol.

GVM unit is currently implementing Remote Sensing processing tools in order to compliance with our objectives defined below.

GVM - GAC processing chain was developed in this context in order to study the behavior of vegetation from long temporal data series. This is able to process AVHRR - GAC data set (15 years of daily data) for obtaining land-cover, fire and burned surface maps.

This paper deals with the general presentation of GVM - GAC processing chain where the radiometric/geometric pre-processing algorithms implemented, the characteristics of the images from the processing, notably special vegetation indices: GEMI3, GEMI, ... will be considered. A comparison with the NASA - GODDARD pre - processed data will be presented in the framework of different thematic applications (e.g. burned surface assessment). We will especially see the absolute location accuracy (better than 1 pixel) that allows analyzing long temporal data series for reliable changes monitoring.

Parameter	Value
Baseline	2.45 m
Aperture Diameter (= entrance pupil diameter)	0.85 m
Effective Focal Length	40 m
Overall field of view	1.4°x1.4°