CENTRE NATIONAL D'ÉTUDES SPATIALES

Comments

on the STM

IOCCG Working Group on Level-1 Requirements
Meeting 1 – 20th-21st April 2010

Introduction

Basic line

- For our exercise, it is not required to deeply investigate all SQ
- Goal is to compile a large set to overview the most aspect as possible
- All SQ will end up with the same list of OC product
- STM send to Scientists – still waiting for some returns

Needs for OCAPI Mission

- OCAPI = Ocean Color Advanced Permanent Imager

- Phase 0 following the CNES 2009 SPS (call for scientific proposals)
  - Submitted by LOV and French partners
  - Daily synthesis (~300m)
  - through an hourly acquisition from GEO
  - Full disc or (large) European zone
  - Near Real Time data availability (coastal)
  - 2500x2500km
  - 12-16 bands set (min set = 8 bands : 413, 443, 490, 560, 665, 709, 754, 886)
  - SNR > 500 for blue bands and ~1000 for NIR bands

- The only future OC need recently documented at CNES (i.e. though scientific arguments)

Needs for OCAPI Mission

- **The only future OC need recently documented (scientific arguments) at CNES**
- **Science objectives :**
  - **Biological-physical coupling at meso & sub-meso scales. How the small scale structures influence global primary production budgets ? : SQ-3, SQ-7**
  - **Characterization of the diurnal cycle of ocean properties. How it can be interpreted on in a biogeochemical context ? : SQ-2**
  - **Data-assimilation in biological-physical coupled models to be improved : SQ-5**
  - **Improvement of PFT algorithms – How PFT are changing and impacting marine biochemistry ? : SQ-1**
  - **How sediment transport in river plumes affect the carbon sequestration in ocean margins ? : SQ-3, SQ-7**
  - **Operational services**
    - Detection of HAB – How to distinguish the toxicity from space ? SQ-6
    - Turbidity and eutrophication
    - Front detection

Feedback from Scientists

- **The proposed SQ list on the STM seems to well overview current/future needs were solicited :**
  - **LOV (D.Antoine, A. Morel, M.Chami)**
  - **LOG (H.Loisel)**
  - **LOCEAN (M.Levy)**
  - **LSCE (C.Moulin, L.Bopp)**

- **Specific topics :**
  - **Hyperspectral VS multi-spectral**
    - Hyperspectral = A second order scientific objective, No important gap.
    - Some potential : second order derivate insensitive to dissolved matter contents
    - But would need very accurate radiometry

- **Under construction list of scientific references**

Specific applications

- **Inventory of OC applications & services provided by ACRI-ST (2007) based on existing OC products**
  - **Overview of OC products**
    - marine reflectance, case-1 & case-2 Chlorophyll
    - transparency, SPM, turbidity index, yellow substances, attenuation coefficient
    - front detection
  - **Products from synthesis**
    - merged multi-sensor products (MERIS, MODIS, SeaWiFS)
    - spatial and temporal synthesis
    - climatology
    - structure detection
  - **4 types of services**
    - S1 : Operational Survey (NRT) : fisheries, Navy, oceanic campaigns
    - S2 : Alert triggering : (H)AB detection
    - S3 : Environmental reports : DCE, classification, aquiculture (fish farming), coastal survey
    - S4 : Global ocean science and change : scientists

Specific applications

- **How to consider applications ?**
  - **It is possible to draw a current overview for applications & services !**
  - **Is it possible to express a future need for applications & services ?**
  - **Experience shows that applications & services are elaborated, created and provided when data are available and based on the existing product accuracy !**

Produits	413	442,443	488,490	510	551,555,560	620	667,670	709	Chla
Chl1									
Chl2									
SPM									
Kd									
EL560									
Transparence									
YSBPA									