

GEONETCast Data Dissemination System for Environmental Resource Management

Introduction to EUMETCast and GEONETCast

GEONETCast is a near real time, global network of satellite-based data dissemination systems designed to distribute essential environmental data to diverse communities around the world. Using low-cost receiving stations and software tools, users have access to a range of data products and information as a basis for environmental monitoring and sound resource management.

This course will introduce users to a range of EUMETCast and GEONETCast products. It will cover areas such as real-time data acquisition, data management and software tools, as well as a range of application areas related to water security and environmental resource management, and to the monitoring of African marine ecosystems.

Course Instructors

Ben Maathuis,¹ Chris Mannaerts,¹ Tsehaie Woldai,¹ Stewart Bernard,² Valborg Byfield,³ Christo Whittle,⁴

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2) CSIR, Stellenbosch, South Africa. www.csir.co.za/nre/coupled_land_water_and_marine_ecosystems/eo.html

3) National Oceanography Centre, Southampton, United Kingdom. www.noc.soton.ac.uk, www.unesco.bilko.org/

4) Marine Remote Sensing Unit (MRSU), University of Cape Town, South Africa. www.sea.uct.ac.za/, www.afro-sea.org.za/

Course Structure

After a joint session covering the GEONETCast system, data acquisition and processing tools, the course will divide into two parallel sessions dealing with two main application areas: (i) water security and basin-scale water resource management, and (ii) monitoring of African marine ecosystems. The course finishes with a joint summary and panel discussion on potential uses of GEONETCast data in African resource management.

Registration

Please register for this course via the IGARSS'09 Short Course web page. For administrative reasons this course is listed as two separate courses, so when registering for the course, please make sure you select the course option that is most relevant to you: SC-1 (Marine Ecosystems) or SC-10 (Water Security).

Financial support for course attendance

Course subsidies are available to cover course fees and a contribution towards travel and accommodation. Details on how to apply for such support is available on the IGARSS'09 Short Course web page at <http://www.igarss09.org/ShortCourses.asp>

Contacts for more information

Water Security: Please contact Tsehaie Woldai (woldai@itc.nl) or Ben Maathuis (maathuis@itc.nl).

Marine Session: Please contact Stewart Bernard (sbernard@csir.co.za) or Val Byfield (valborg@noc.soton.ac.uk).

Detailed Course Content

Joint Session: Introduction to GEONETCast

- Current international activities and initiatives relevant for Africa (GEO/GEOSS, GMES-Africa, AMESD, UNEDRA).
- Introduction to database concepts and data storage, real-time image acquisition using a low cost receiving station.
- On-site demonstration of the receiving station;
- Overview of land, marine, meteorological and disaster products available from GEONETCast;
- Introduction to software tools for data processing and visualisation, demonstration of their use with examples.

Parallel Session I: Water Security and Basin-Scale Water Resource Management

- Overview of recent developments in Geo(IT) tools and techniques in water resources management, issues in watershed research, flood and drought monitoring;
- Extraction of relevant data from remotely sensed time series of Meteosat images;
- Extraction / import of Meteosat images, radiometric and geometric calibration, working with visual, shortwave and thermal image data.
- Extraction / import of other data and products relevant for water and environment from the GEONET-Cast data stream.
- Transforming images to information; e.g. rainfall extraction, computation of NDVI time series, computing evaporation.

Parallel Session II: Monitoring of African Marine Ecosystems

- General overview of marine data and products available from GEONETCast.
- Introduction to the ChloroGIN high resolution (1km) ocean colour and SST data products available for the African Large Marine Ecosystems.
- Principles behind ocean colour measurements and data processing; applications of ocean colour data to marine environmental monitoring and ecosystem-based resource management.
- Principles behind sea surface temperature (SST) measurements and data processing; applications areas and synergistic use with ocean colour data.
- Hands-on computer practicals based on African case studies demonstrating applications of current high resolution SST and ocean colour data.

Joint Session: Summaries and Discussion

- How can GEONETCast data contribute to African resource management in the future? Summaries from the separate sessions followed by discussion.

Course Materials

Lecture notes will be available for download before the start of the course.

Lectures, data, software and other resource material need for this course will be made available to participants on DVD during the course.

