

## **Seminari del 16 Dicembre 2010 presso CNR**

**in Via Amendola 122/D, AULA 1, primo piano - BARI**

Nell'ambito del progetto coordinato dal CNR-ISSIA e finanziato dalla comunità Europea in FP7-SPACE-2010-1 dal titolo:

**BIO\_SOS** (*Biodiversity Multi-Source Monitoring System: From Space To Species*)

si terranno i seguenti tre seminari:

**1) Ore 10.00: Prof. Rob Jongman, Alterra, Wageningen UR**

***Biodiversity monitoring linking in situ and Earth Observation data: the state of the art***

**2) Ore 11.30: Dr. Laurent Durieux, Institute de Recherche pour le development, IRD, France**

***The Remote Sensing – Image Understaging BIO\_SOS proposed system (RS-IUS).***

**3) Ore 16.30, Prof Richard Lucas, Aberystwyth University**

***Remote Sensing of Vegetation State and Dynamics: Implications for Biodiveristy and Carbon Budgets***

# **Biodiversity monitoring linking in situ and EO data: the state of the art**

***Prof. Rob Jongman***

The European Biodiversity Observation Network is a European contribution on terrestrial monitoring to GEO BON, the Group on Earth Observations Biodiversity Observation Network. This is the biodiversity arm of the Global Earth Observation System of Systems (GEOSS). Its primary goal is to increase coordination among the people and organizations collecting, managing, and utilizing biodiversity observations, thereby increasing the ability of others to access, share, and analyze these observations for reaching the objective of making the global community better informed on the stock and change in biodiversity.

The amount of existing biodiversity observations especially in Europe is very large; however, observations are very uneven in spatial, temporal, topical, and taxonomic coverage. Most data are available in north-western Europe, while south-eastern and Mediterranean Europe have much less complete datasets. Additionally, observations exist in a variety of disparate formats varying from in situ to multispectral EO data and scattered among thousands of independent systems, often making them difficult or impossible to access, and hampering the ability to do global or regional assessments. Coordinating both the collection of biodiversity observations, as well as their storage, management, and distribution, would greatly increase the value of these observations by allowing much more value to be extracted from them. It is the purpose of EBONE to make data accessible so that it can be used in a coordinated way to make distribution maps, statistics on stock and change and wall-to-wall maps and use these to populate the biodiversity indicators for the Convention on Biological Diversity and the European SEBI indicators.

To present a full picture of what is happening to biological diversity, a coordinated monitoring network would need to integrate masses of biological information with data and forecasts on climate change, pollution and other threats to biodiversity. The lack of comprehensive information about the world's biological resources continues to undermine the efforts of policymakers and managers to set priorities, elaborate strategies and assess the effectiveness of their actions. New EO technologies are improving the collection and analysis of biodiversity information. These increasingly sophisticated monitoring systems, which consist of satellite, air, land and ocean-based instruments, are being interlinked.

## **Rob Jongman's Experience**

### **Alterra**

Dr Rob Jongman is a landscape ecologist with long experience in river ecology, nature conservation planning and environmental monitoring. His PhD project was on ecology, planning and policy in river systems. From 1995 until 2007 he worked on modelling river landscapes and water processes in the Orinoco (Venezuela) and Pantanal (Brazil). In 1987 he published with two colleagues a handbook on multivariate analysis in (landscape) ecology based on a post graduate course on statistics for practitioners. This handbook has been published through Cambridge University Press since 1995 and is still one of the leading student text books.

Since 1990 he developed the concept of ecological networks at the European level as a new strategy for nature conservation planning. He has been involved in a large number of

projects on development of ecological networks in Europe. As part of this he was seconded for four years at the European Centre for Nature Conservation (ECNC 1994-1997) focusing on the Pan European Ecological network. As a result of this work he published in July 2004 the book "Ecological networks and Greenways" on the development and implementation of ecological networks in the Cambridge University Press Landscape Ecology Series.

His present interest is the implementation of academic ecological knowledge into real world problems and the interaction between science and practice. His present projects are focusing on this in the field of biodiversity monitoring and ecological networks. With Biodiversity International and NASA he is co-lead in the GEO biodiversity Community of Practice GEO-BON ([http://www.earthobservations.org/cop\\_bi\\_geobon.shtml](http://www.earthobservations.org/cop_bi_geobon.shtml)) and leader of the European pilot project on biodiversity monitoring EBONE (<http://www.ebone.wur.nl>).

## **Dr. Richard Lucas, Aberystwyth University, UK**

<http://www.aber.ac.uk/en/iges/staff/academic-staff/professor-richard-lucas/>

Dr. Richard Lucas received a B.Sc. (1986) in Geography and Biology and a Ph.D. (1989) in snow and vegetation characterisation and mapping from NOAA AVHRR data, both from the University of Bristol, UK. He subsequently was a Postdoctoral Research Fellow (until 1996) in the Department of Geography, University of Wales Swansea, researching the discrimination and mapping of tropical forest regeneration stages in Cameroon and the Brazilian Amazon using temporal Landsat sensor and NOAA AVHRR data. Between 1996 and 2000, he worked at the Bureau of Resource Sciences and the University of New South Wales in Australia, researching the integration of remote sensing data for quantifying biomass/carbon dynamics associated with land use change. His current research focuses on the use of remote sensing data (e.g., SAR, hyperspectral and lidar) for mapping and quantifying changes in the species/community composition, biomass and structure of tropical and subtropical forests and woodlands (including mangroves) in relation to anthropogenic land use and climate change.

## **Laurent DurieuxLaurent Durieux, IRD,**

Ingénieur de recherche à l'Unité Espace de l'Institut de Recherche pour le Développement. Actuellement coordinateur du programme SEAS (Surveillance de l'Environnement Assisté par Satellite) au Brésil. Il a soutenu une thèse de doctorat en géographie sur l'impact de la déforestation sur les nuages convectifs en Amazonie et a étudié au Centre Technique Aérospatiale de Sao José dos Campos au Brésil. Après des études à l'IRD sur la gestion intégrée des zones côtières à l'île de la Réunion, il a rejoint le Centre Commun de Recherche de la Commission Européenne d'Ispra en Italie où il a effectué des recherches sur la cartographie mondiale de la végétation par satellite comprenant une observation détaillée des forêts tropicales. Il a rejoint l'IRD depuis 2006 pour coordonner la coopération scientifique avec le Brésil à partir du laboratoire de télédétection en pied d'antenne de réception SPOT à Cayenne. Il est un pionnier de l'analyse d'image orientée objet et ses recherches portent aujourd'hui sur l'étude et le suivi des écosystèmes tropicaux par télédétection. Il participe actuellement à la cartographie de l'ensemble des zones humides tropicales du globe à partir d'images ALOS et SPOT. Les domaines d'application de la télédétection auxquels il a réalisé des apports comprennent : le suivi de la déforestation, la cartographie de la végétation, la cartographie des récifs coralliens, l'évaluation du risque d'incendie, la cartographie de l'aléa érosion, les relations environnement/épidémiologie, l'expansion urbaine, la cartographie des surfaces agricoles et la cartographie des zones humides. He is WP5 leader in BIO\_SOS project