TECHNOLOGIES OF EO: AN ASSET TO SUPPORT THE SOCIO-ECONOMIC DEVELOPMENT OF MOROCCO

Kamal LABBASSI
Morocco

2nd South-Eastern Europe GEO Workshop on Integrating Earth Observation Data and Services for monitoring the Environment, protecting the citizens and stimulating the regional economic growth

20, 21 October 2014

The Chouaib Doukkali University [www.ucd.ac.ma]

جامعة شعيب الدكالي
Université Chouaïb Doukkali

- 6 Faculties,
- more than 507 teachers, 255 administrators,
- 22 302 students.
- Research
  - 2 centers for doctoral studies,
  - 25 laboratories, 82 research teams.
  - Researches activities in harmony with the regional socio-economic potential.

The Faculty of Sciences [http://www.fsj.ac.ma]:

- more 10.000 students
- 6 departments, covering the major scientific disciplines: Physics & Chemistry, Biology & Geology, and Mathematics & Computer Science

The Geosciences & Remote Sensing Group
[http://www.fsj.ac.ma/GRS]

- 4 Teacher-researchers
- 1 Post-doc
- 3 Phd Stuent
- Several Masters student

Réseau National des Sciences et Techniques de la Géo-Information (REGI).

Pôle de compétence en Sciences et Techniques de la Télédétection Spatiale.

Le Spatiale au service de la surveillance de l'environnement et la gestion durable

focal Point: Faculty of Sciences, El Jadida

REGI

- **Consortium of 8** University, **13** accredited research structures
- ***133*** researcher and teacher-researchers
- ***72*** PhD
- ***19*** research projects

GENERAL THEME

Geo-Information Science for Monitoring of the Environment and Sustainable Management

SOUS-THEMATIQUES

- ***Methodological development: processing, integration and modeling.***
- ***Satellite data for ecosystem management and environmental applications.***
- ***Hyperspectral remote sensing for the assessment and mapping of natural resources.***
- ***Geographic Information Sciences (GISc) and land management.***

MARSE

Moroccan Association of Remote Sensing of the Environment

Non-profit association, created in 2011

A link with the socio-economic Environment

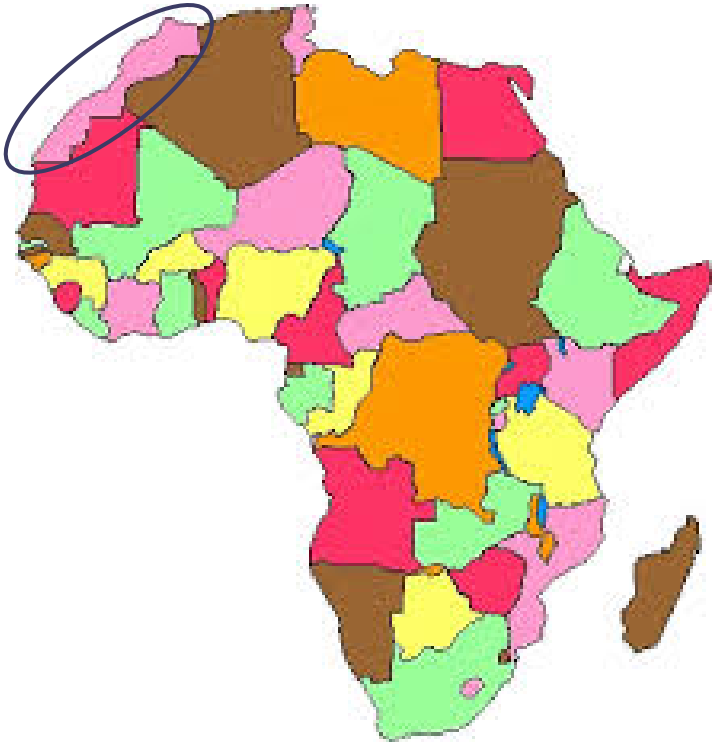
Goal is to promote research in environment and sustainable development, through:

- ✓ Various communication means (scientific meetings)
- ✓ Support of young researchers
- ✓ Establishment of relations, coordination and exchange of experiences with other organizations (associations, industries, universities, ...).

MARSE: Branch National of AARSE

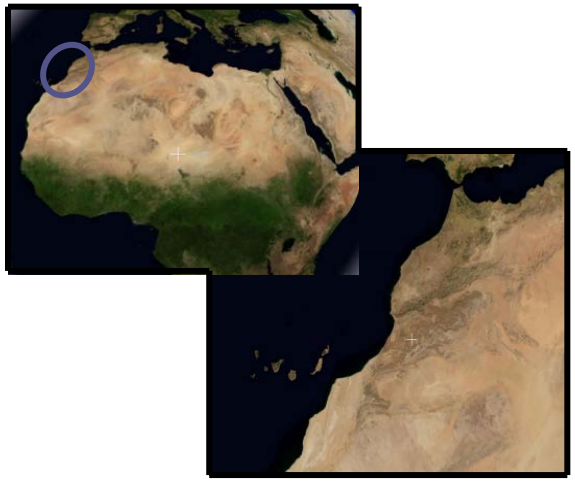
47 members

LOOKING FOR PARTNER



Population of over 33 million and an area of 710 850 Km².

Morocco's economy is considered a relatively liberal economy, based on agriculture, tourism, mining and services sector.



National Commission

CRERS

CRTS

REGI

And others

Thematic aspects

Various ministries

Scientific issues

Universities and research centers

Coordination-awareness

NGO, different actors

Needs…

support major socio-economic projects

Plan Maroc vert (agriculture) ***National Water Strategy*** ***Program "cities without slums"***

National Plan for Geological Mapping (Mines)

National Energy Strategy (renewable energy)

National strategy for environment

National Plan for the Fight against Global Warming

AGIRE

Support for the Integrated Management of Water Resources

Programme d'Appui à la Gestion Intégrée des Ressources en Eau

برنامج دعم التدبير المندمج للموارد المائية

Objective: : Improved sustainable and integrated management of water resources in Morocco

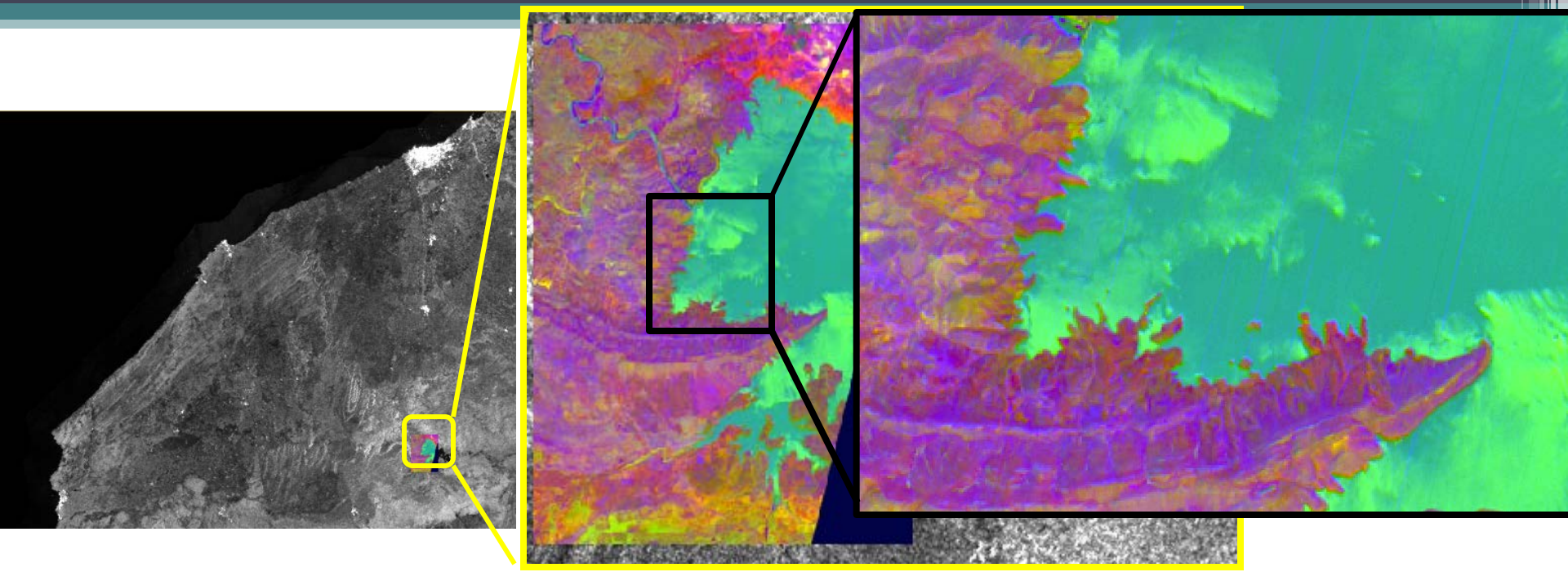
- improve the institutional , the regulatory and organizational framework
- strengthen the technical capacity
- improved communication and coordination among actors

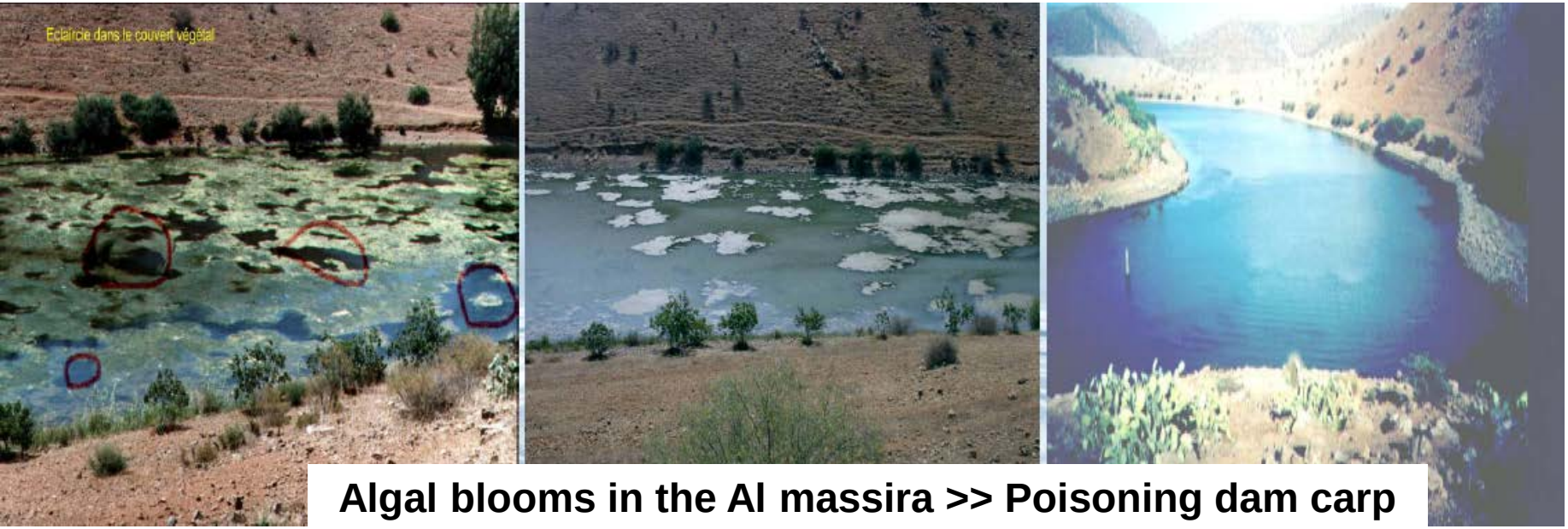
Partner:

- Department of Water, Department of the Interior
- Hydrological basin agency
- Universities
- German Cooperation (GIZ)

Duration / budget: 10 years (2008-2018), 12 Million Euro (financing, GIZ)

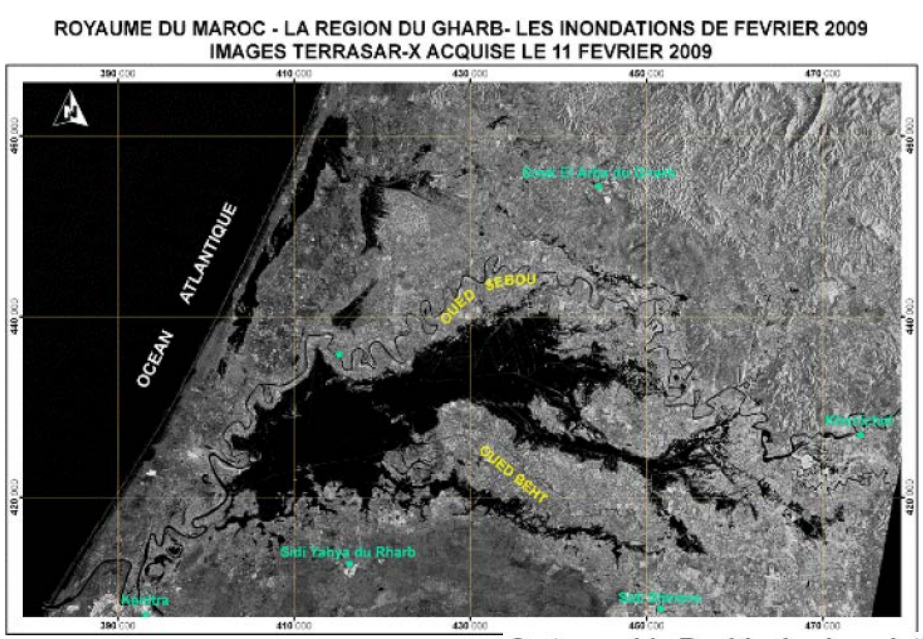
Water quality

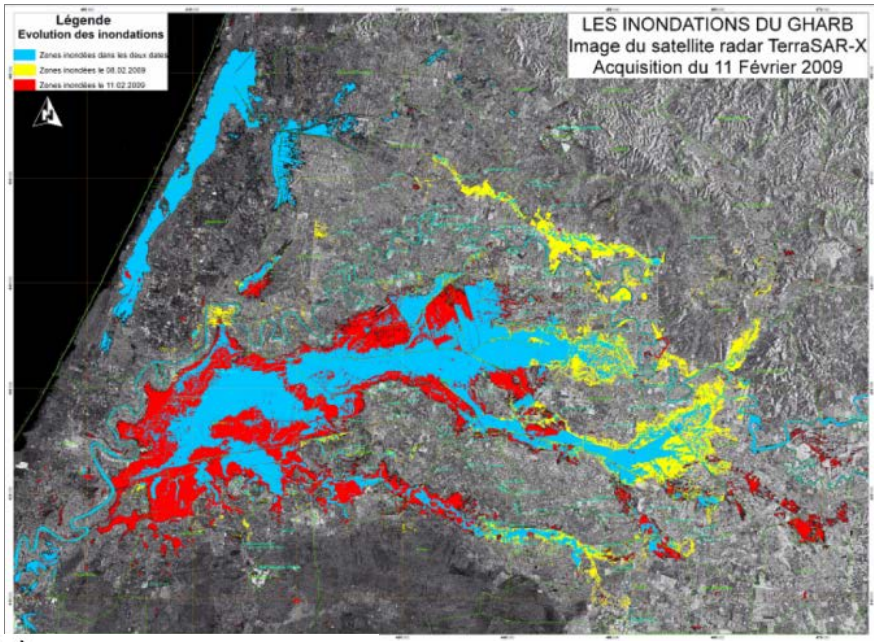




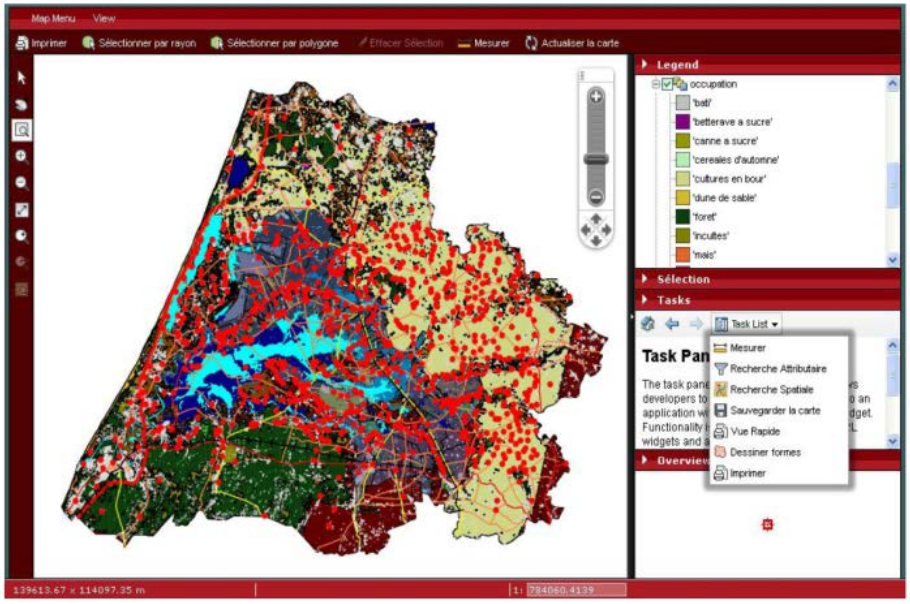
Algal blooms in the Al massira >> Poisoning dam carp

mapping and rapid monitoring of flood





Cartographie Rapide des Inondations (accès)

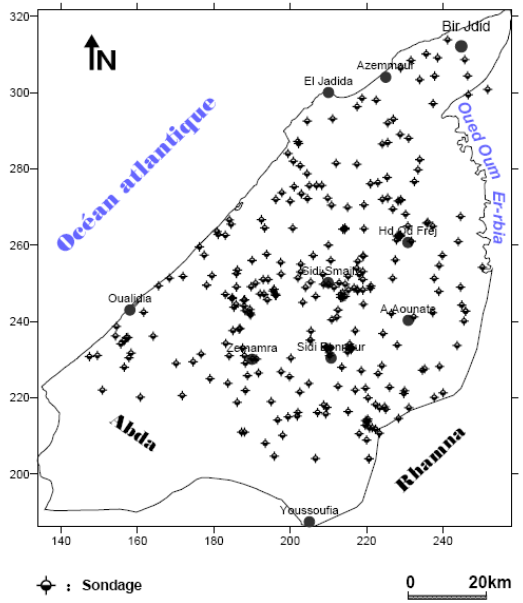


SaDIN

Sahel Doukkala Scientifique Information Network

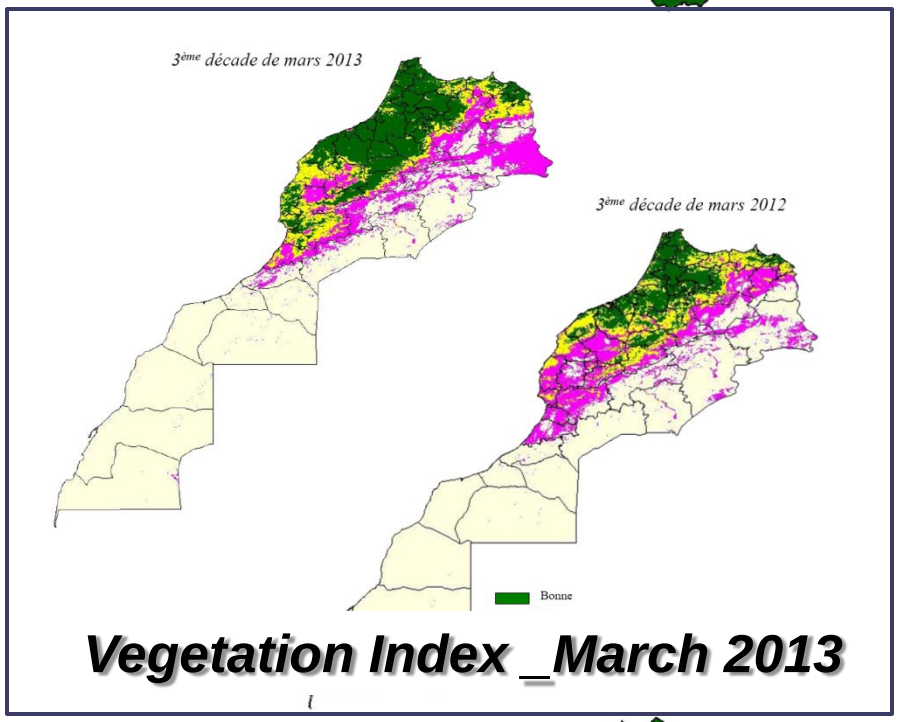
(Chouaib Doukkali University)

- Objective : evaluation of the potential of aquifers and their pollution caused by the pumping of groundwater.
- Focus on the infiltration of salt water from the sea into aquifers,
- Epidemiological investigations on the heal situation of the local population



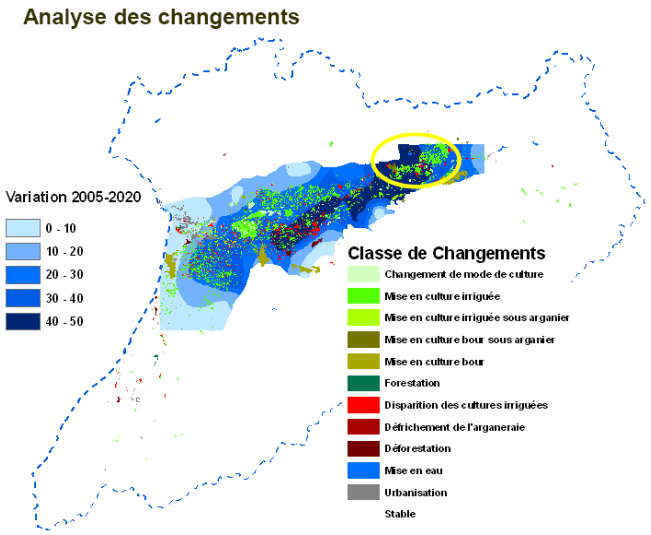
- Environmental parameters, such as wildlife, vegetation and illegal waste dumps

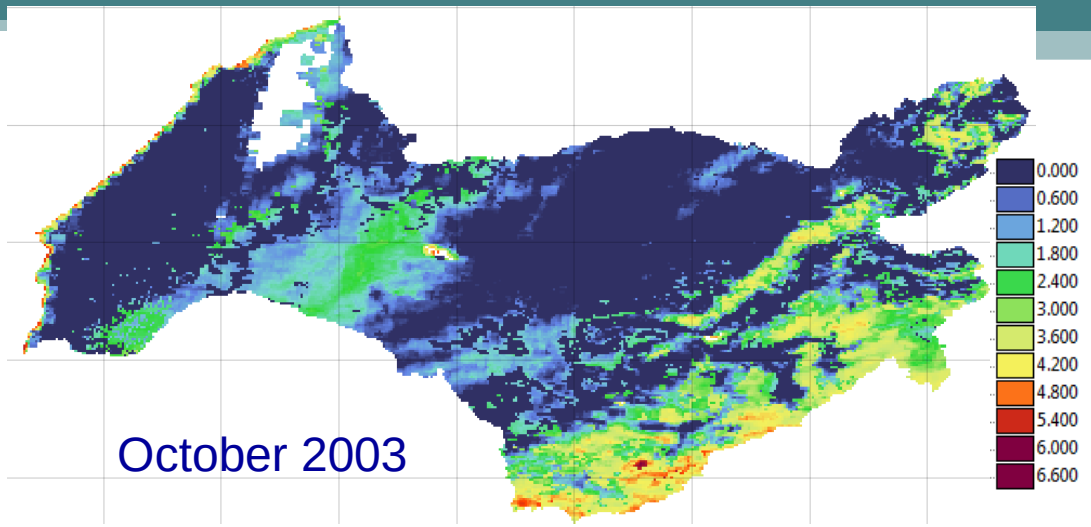
Agriculture

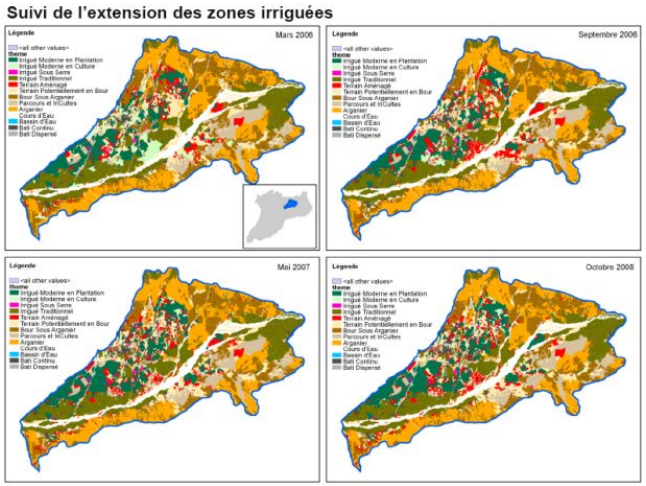


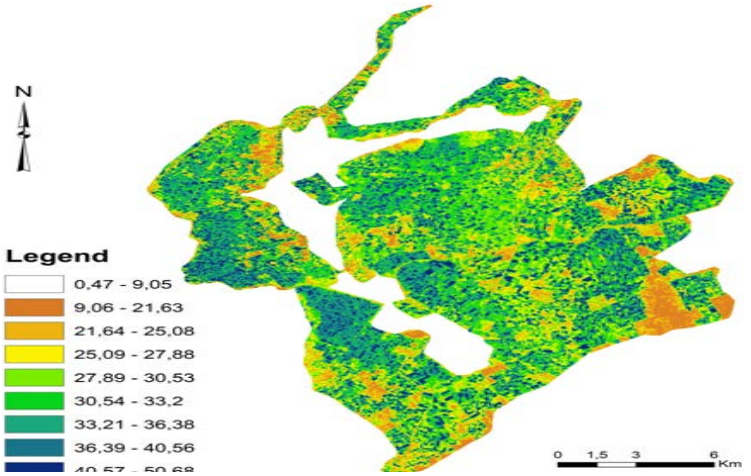
Vegetation Index _March 2013

Agriculture

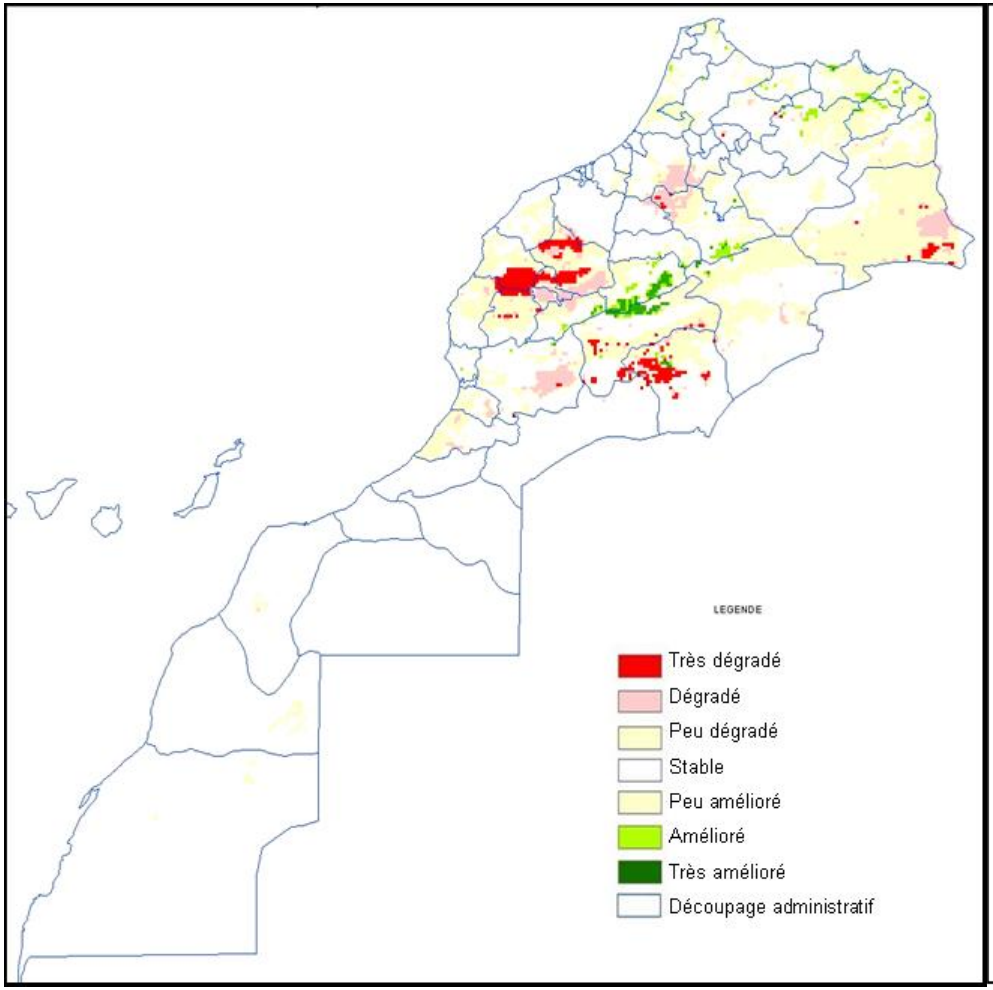


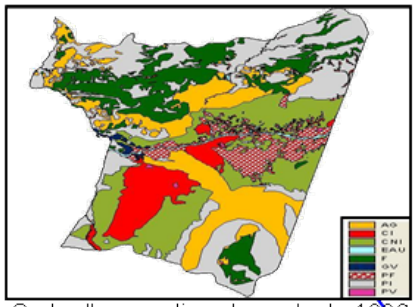




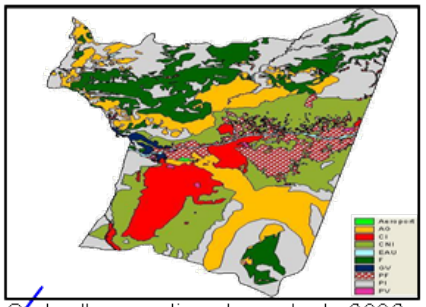


Development of indicators and monitoring mechanisms of desertification integrating satellite data and ground data

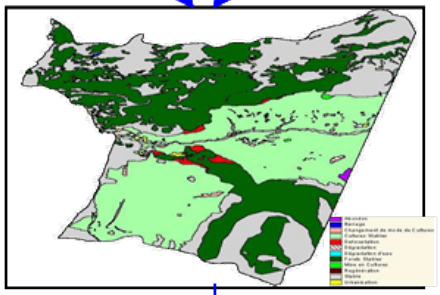




Carte d'occupation des sols de 1986



Carte d'occupation des sols de 2002



Carte des changements

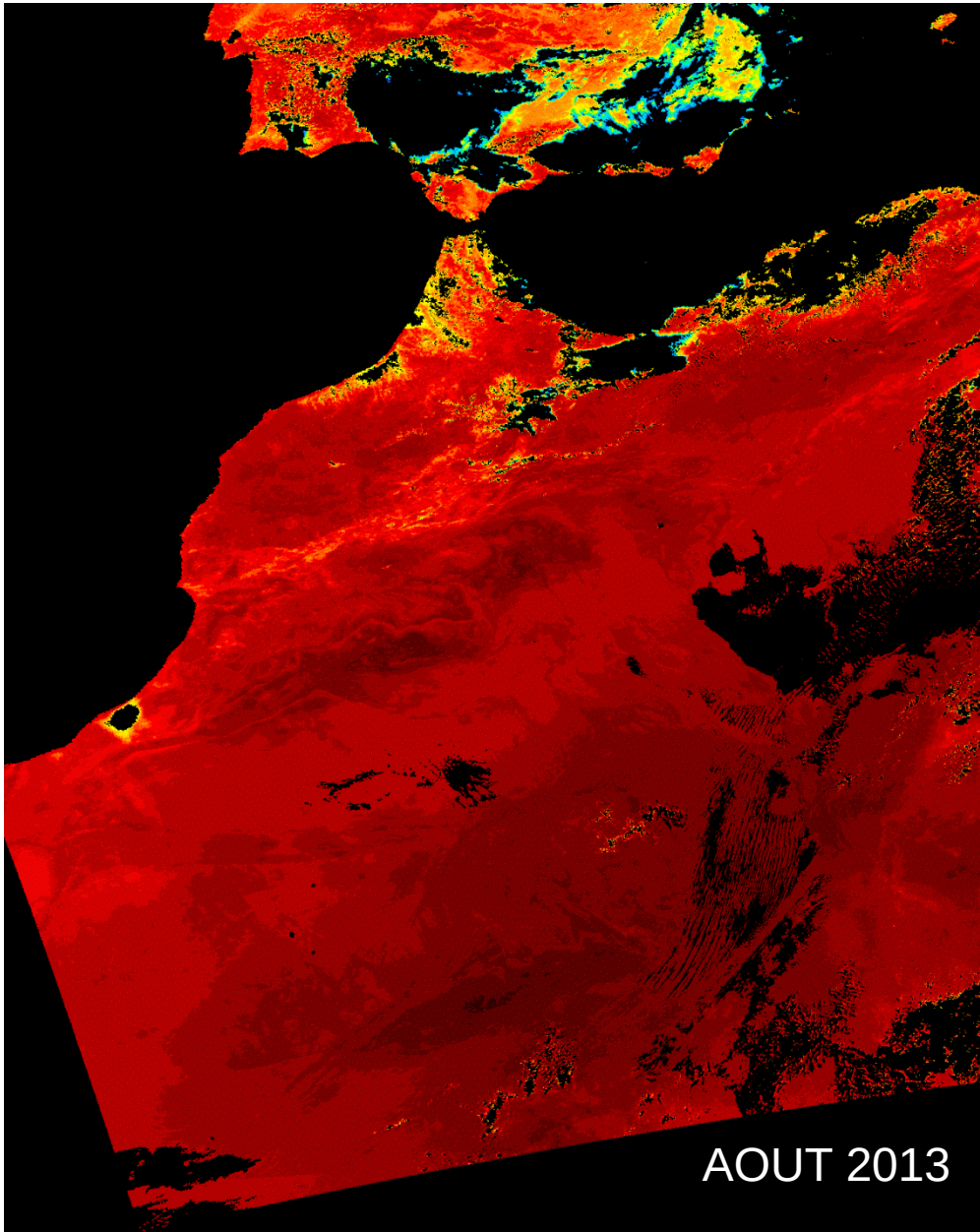
	1986	2002	Diff.	%
Arganier	167244	160009	-7236	-4.3
Forêt	141229	139694	-1535	-1.1
C. irriguées	74740	80172	5432	7.3
C. en bour	181097	176658	-4439	-2.5
Plantations	61144	65347	4203	6.9
Parcours	264636	264893	256	0.1
Eau	7259	7243	-15	-0.2
Bâti	5564	8897	3333	59.9
Total	902913	902913		

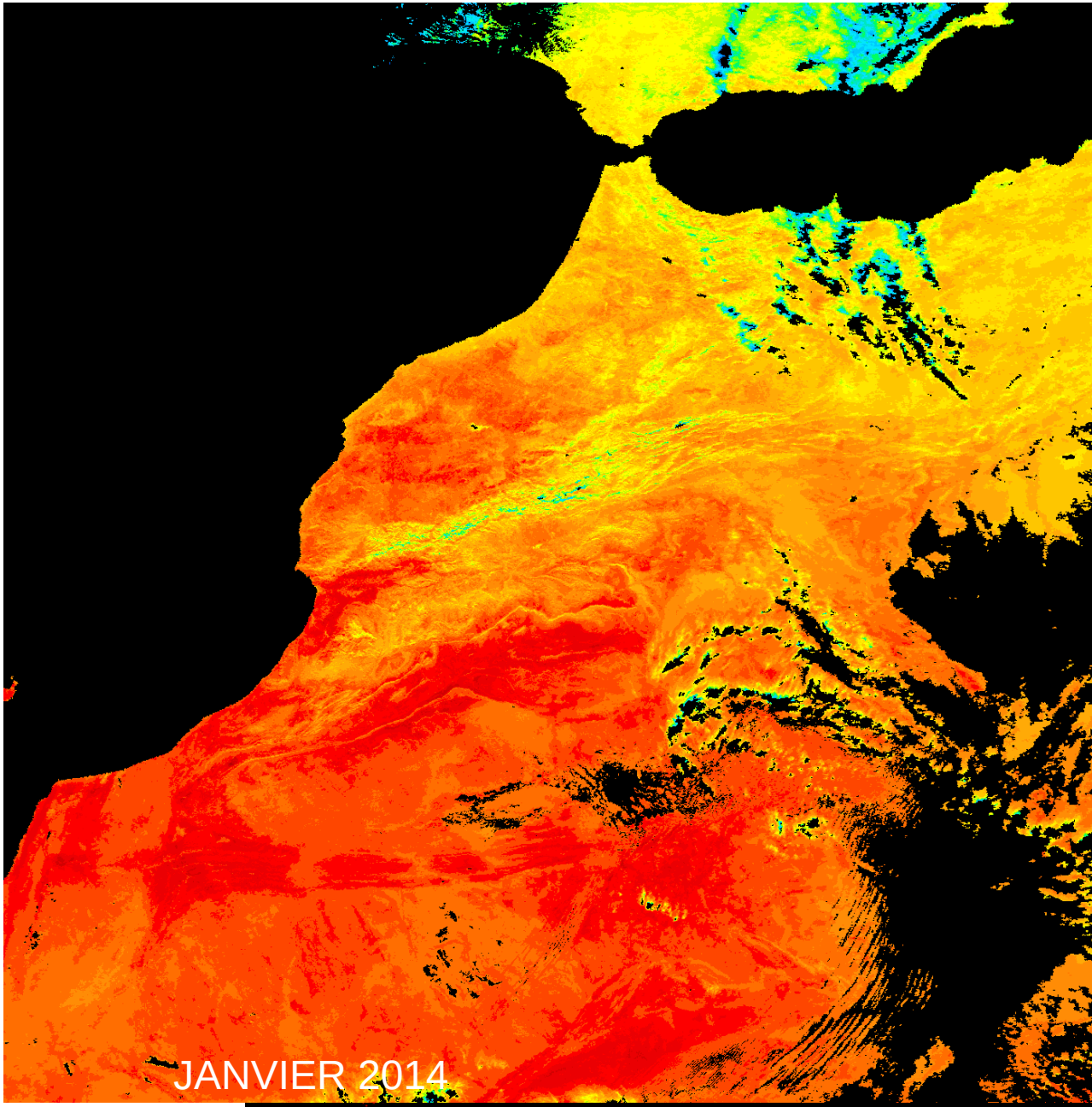
Statistiques de changement 1986-2002

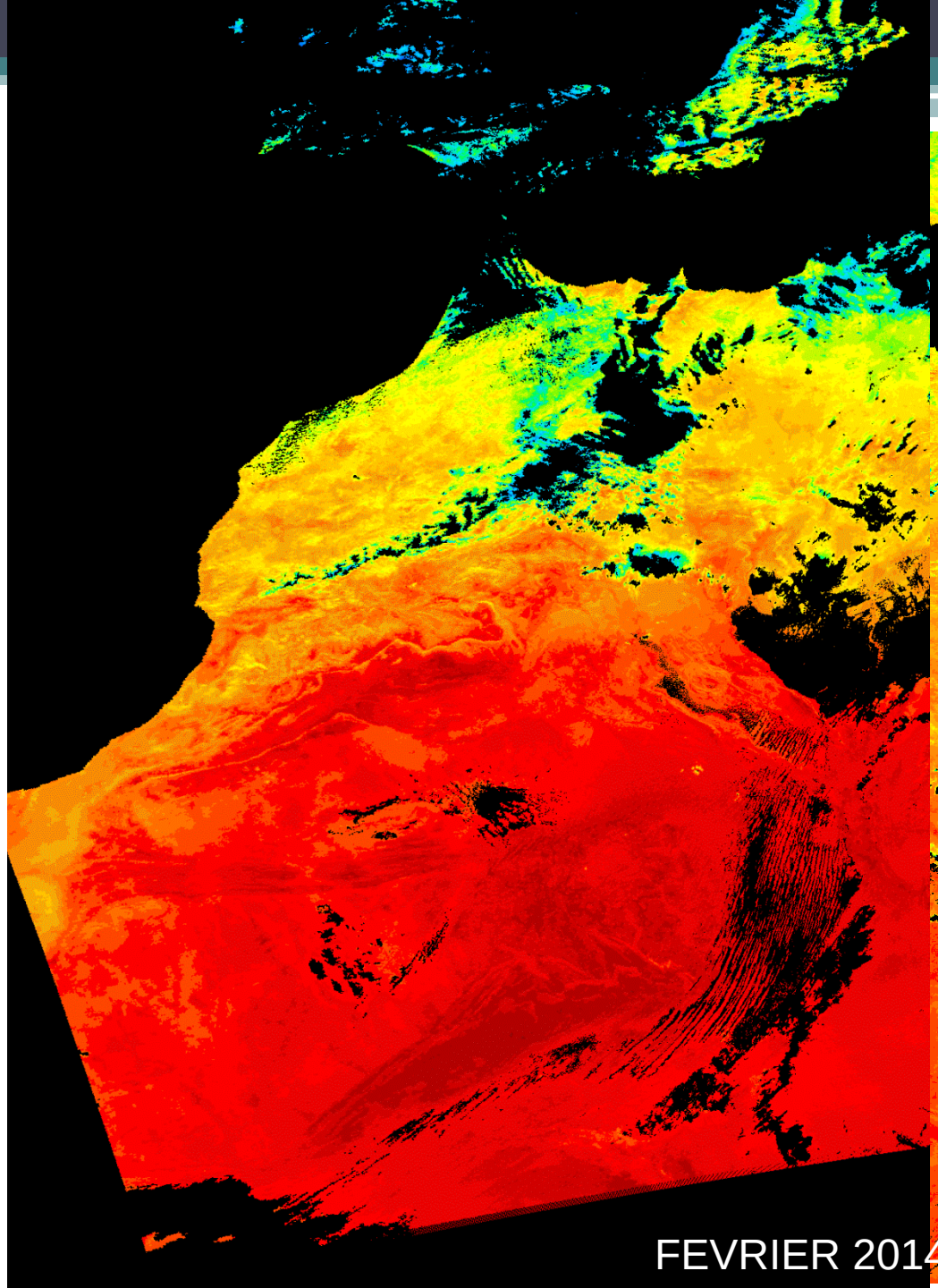
Classe	Forêt	Arganier	Parcours	Plantations	Irrigué	bour	Eau	Bâti	
Forêt	139682	0	1853	0	0	0	0	22	141298
Arganier	0	160023	160	1481	3514	1979	17	153	167294
Parcours	121	3	261888	190	148	628	309	1566	264436
Plantations	0	0	0	60682	0	5	0	594	61288
Irrigué	0	0	0	105	74208	74	0	356	74741
Cultures bour	0	0	1178	2888	2307	174008	0	648	181100
Eau	0	0	190	0	0	0	6918	0	7108
Bâti	0	0	0	0	0	0	0	5563	5563
	139682	160023	264888	65348	80175	176954	7232	8893	902908

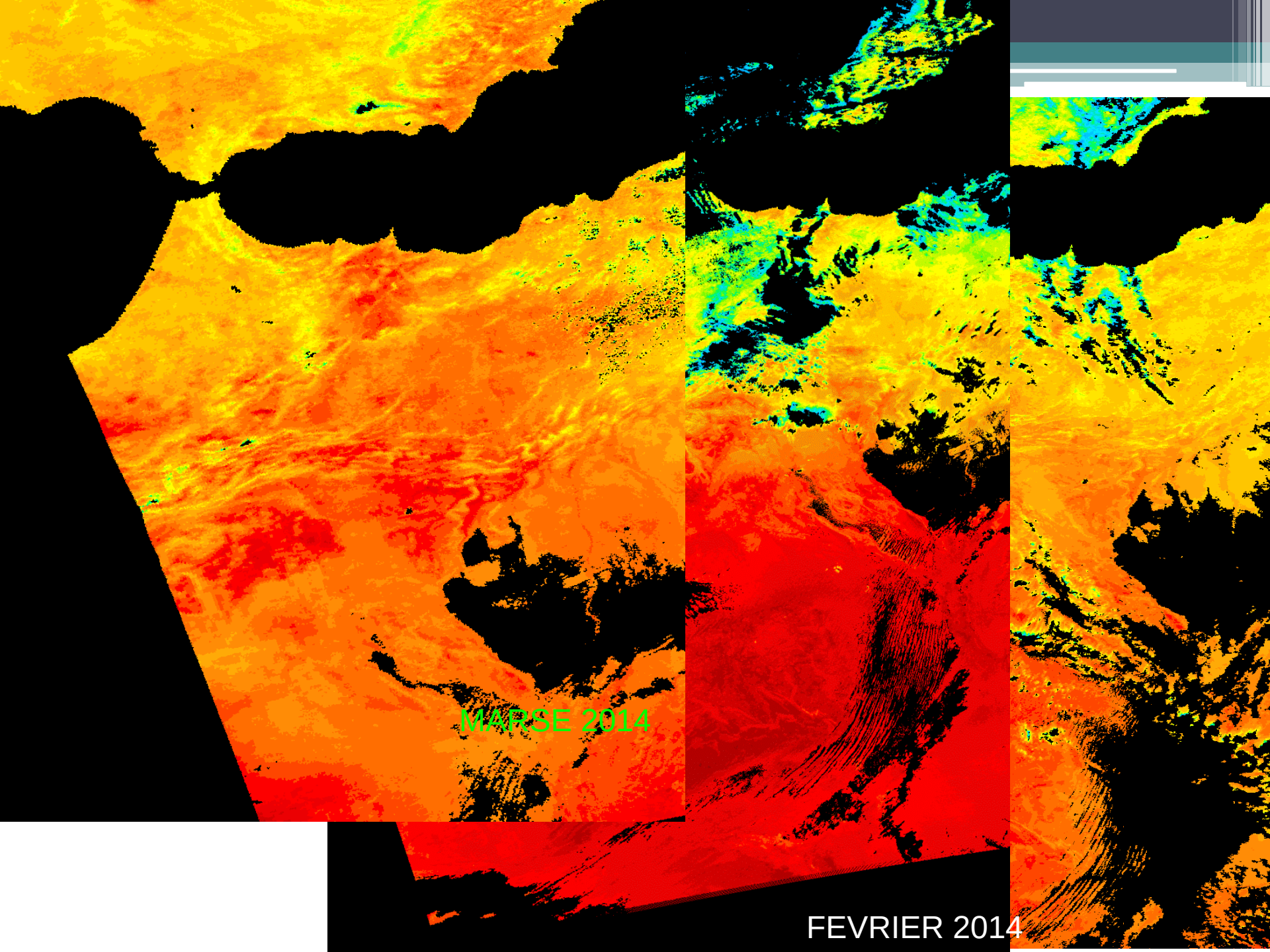
Matrice de changement 1986-2002

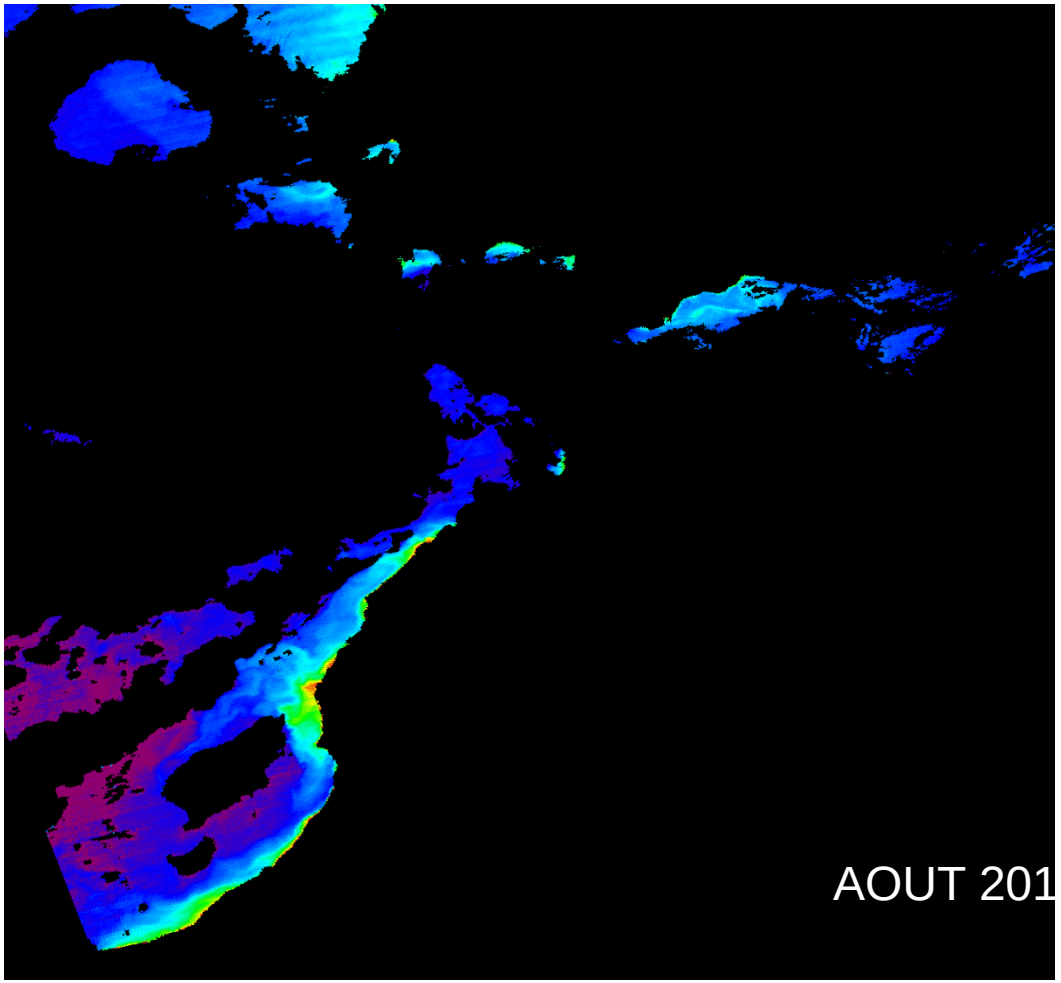
wildfire

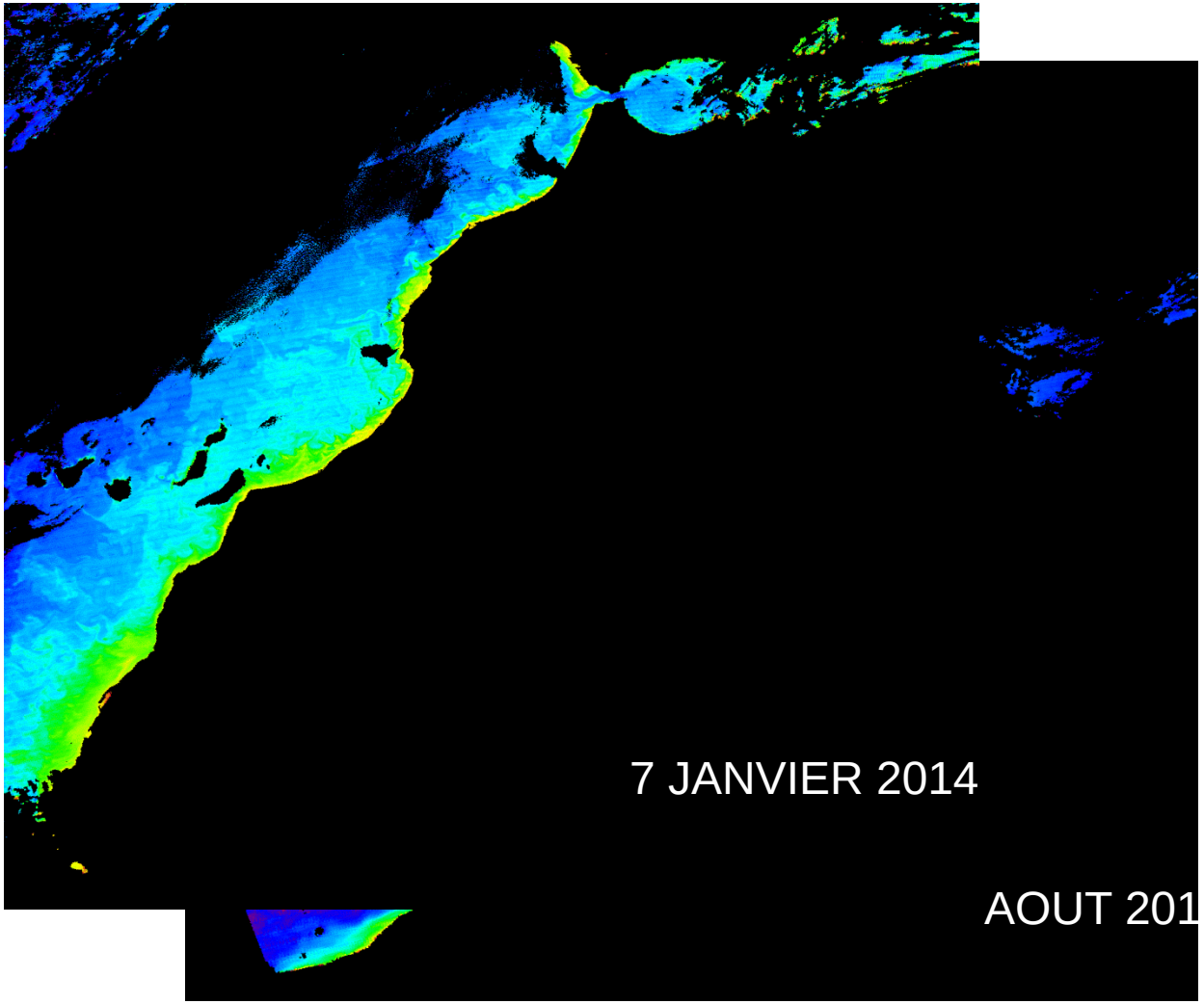


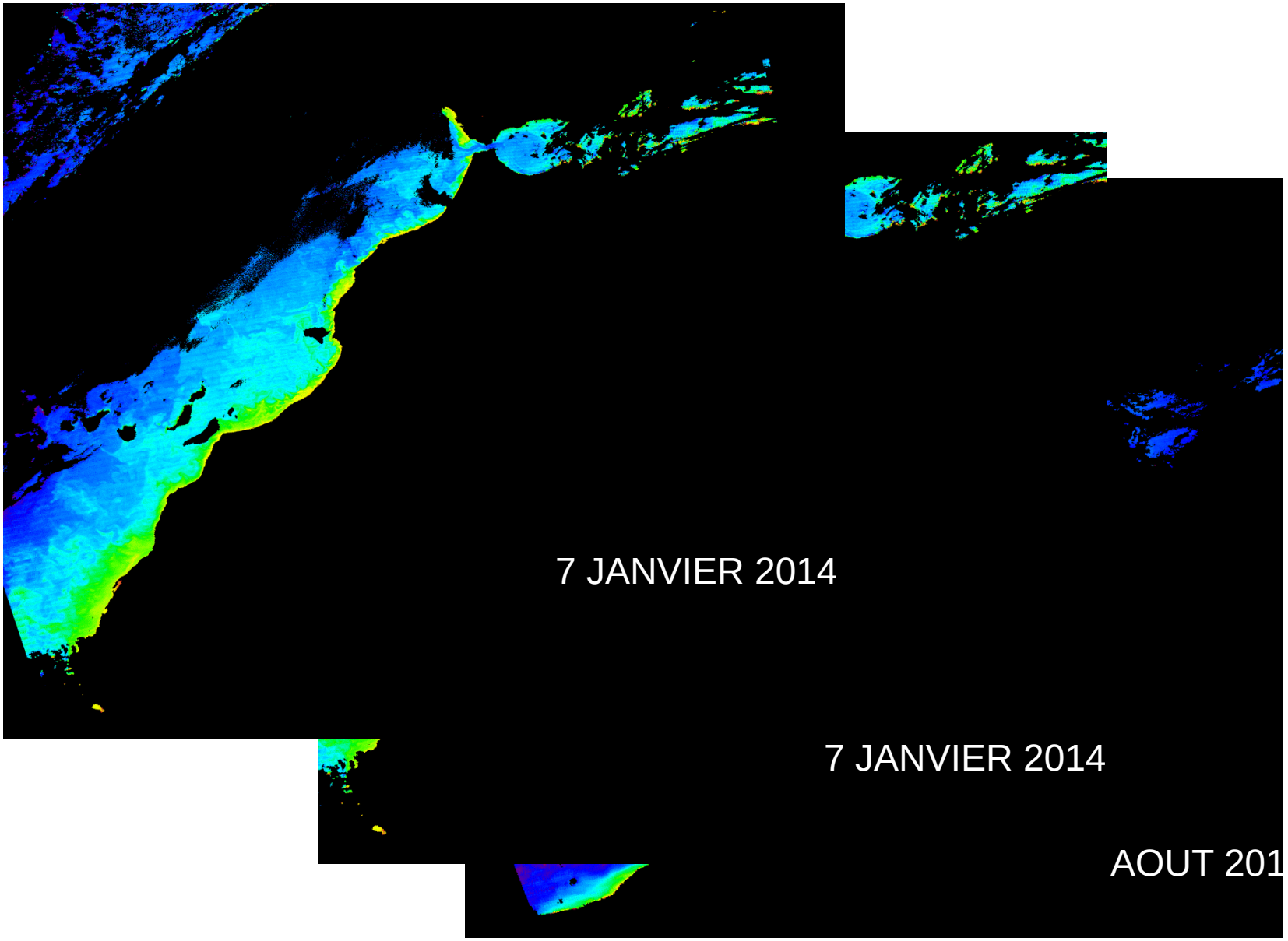

JANVIER 2014

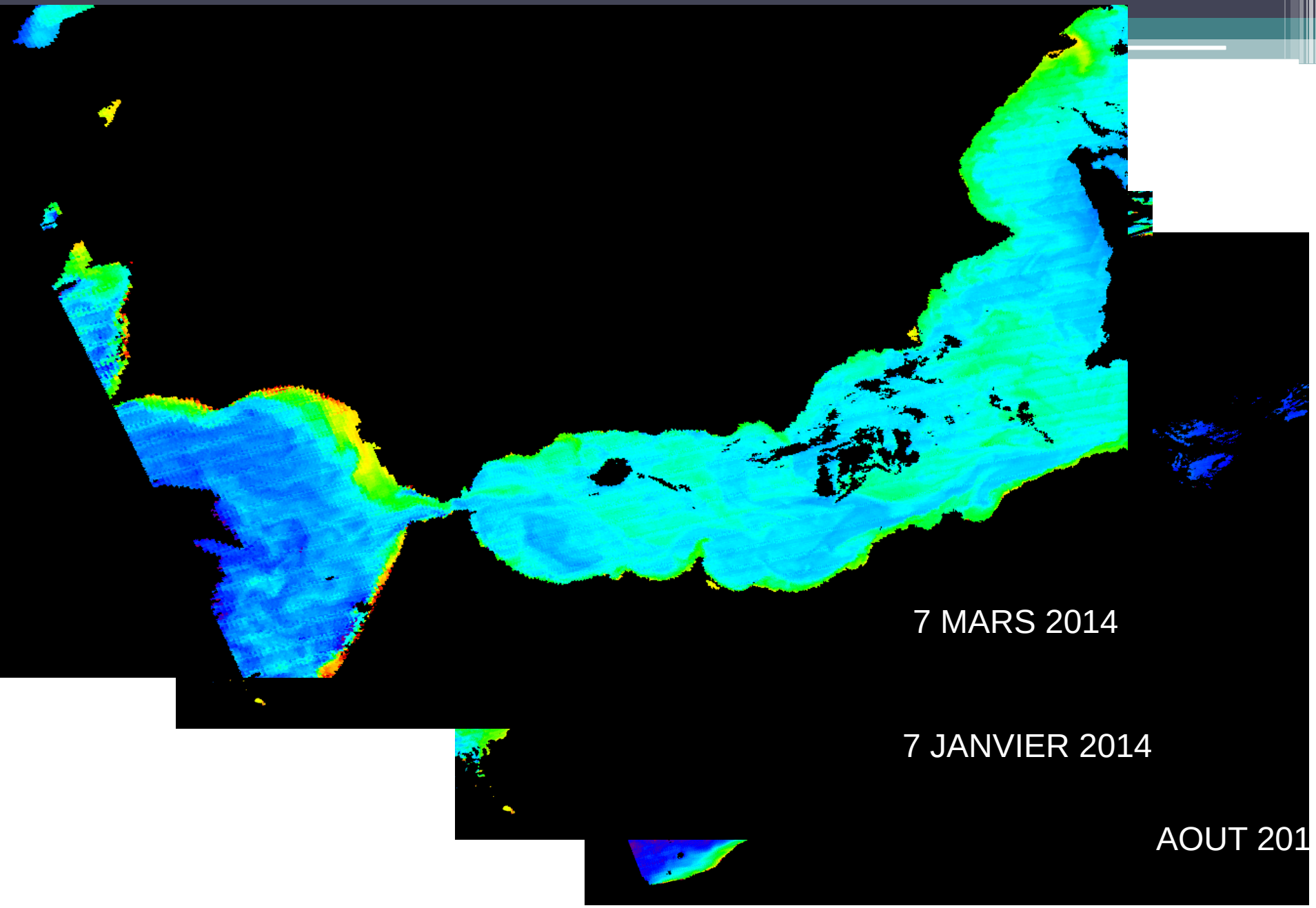

FEVRIER 2014


MARSE 2014
FEVRIER 2014

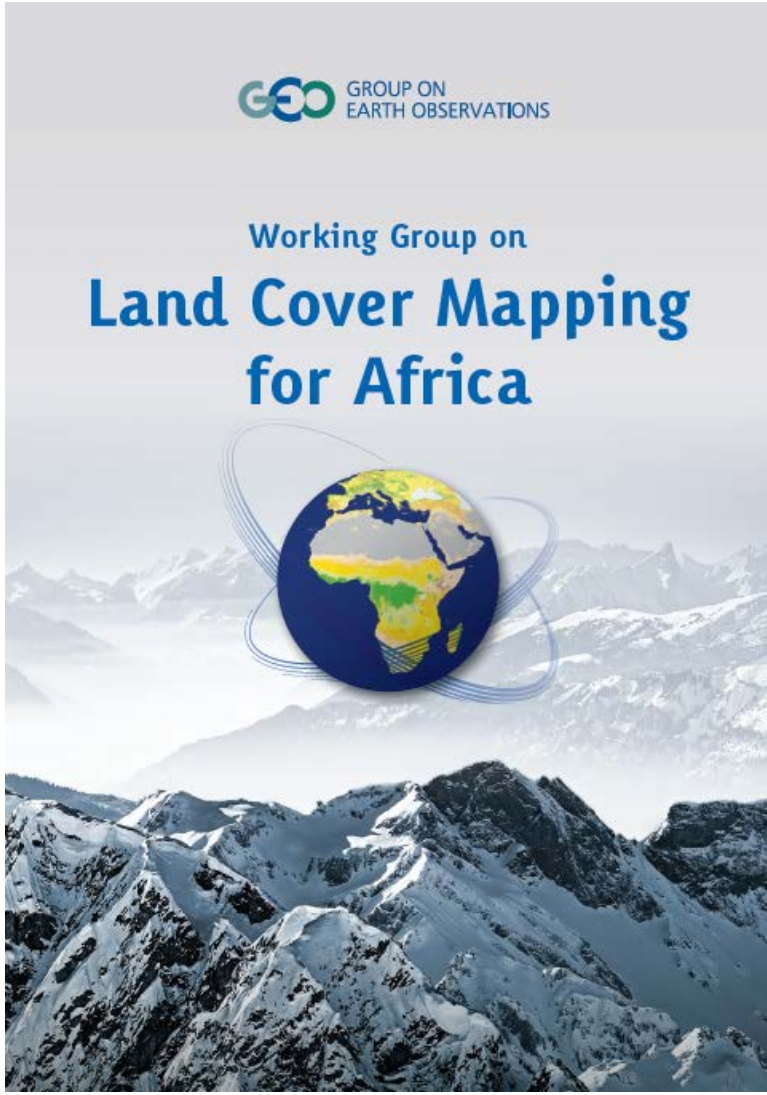

AOUT 201


7 JANVIER 2014
AOUT 201

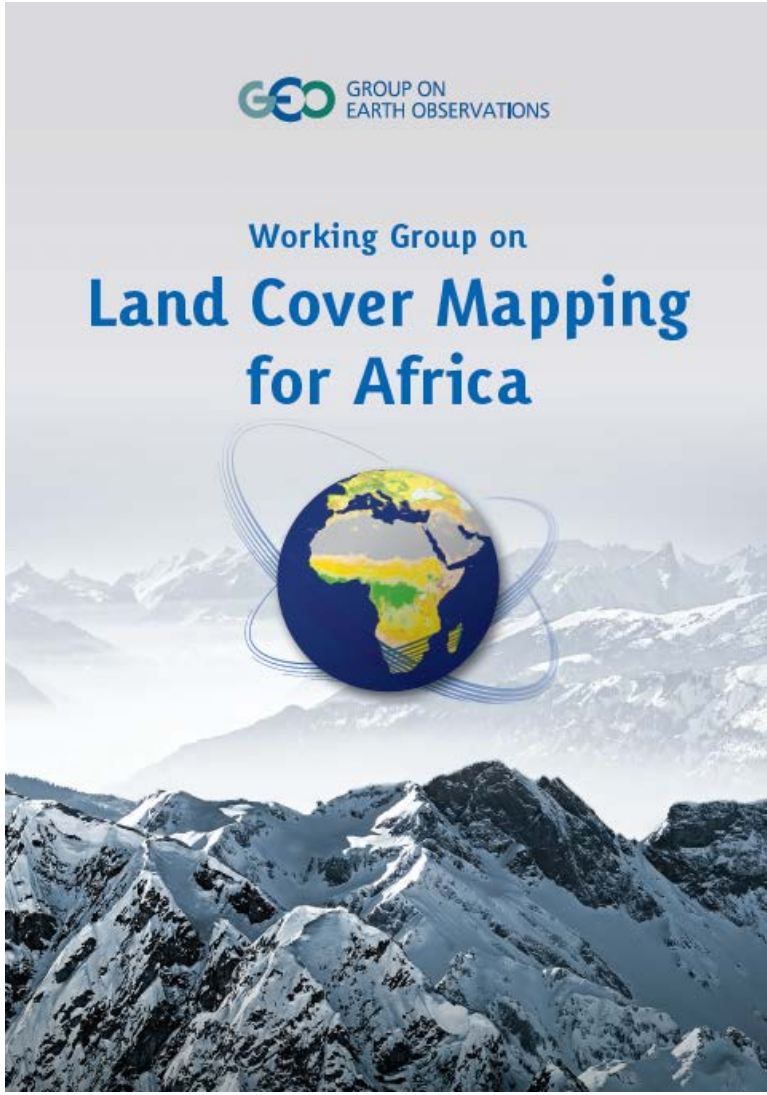

7 JANVIER 2014
7 JANVIER 2014
AOUT 201


7 MARS 2014
7 JANVIER 2014
AOUT 201

The purpose of the Working Group is to contribute to the development of a land cover data products for the entire African continent at a 30 meter resolution for the African element of the Global Earth Observation System of Systems (AfriGEOSS). This will be established by building mutually beneficial partnerships with national and regional institutions to assess and respond to their land cover needs, developing products while increasing their involvement in the Global Land Cover Database effort.



- Contribute to the development of a land use/land cover data product for the entire African continent at a 30 meter resolution for the African element of the GEOSS (AfriGEOSS);
- Advocate for a full and open access to data;
- Raise awareness of decision makers at multiple levels
- Build mutually beneficial partnerships with national and regional institutions;
- Promote sound governance policies and activities;
- Establish an Africa-focused Community of Practice for Land Use and Land Cover to facilitate networking among scientists and technicians.



Executive Board

Eastern Africa Region (Chair):
Hussein O. Farah
Regional Centre for Mapping of Resources for Development (RCMRD), Nairobi, Kenya
Email: rcmrd@rcmrd.org

Indian Ocean Region:
Solofo Rakotondraompiana
Université d'Antananarivo, Madagascar
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srakotondraompiana@gmail.com

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Chouaib Doukkali University, Moroccan Association of Remote Sensing of the Environment (MARSE)
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Western Africa Region:
Isi Ikhuoria
Regional Centre for Training in Aero
(RECTAS)
Email: edrectas@rectas.org

Technical Advisory Group

Islam Abou El-Magd — National Authority for Remote Sensing and Space Sciences (NARSS
Tobias Landmann — International Centre of Insect Physiology and Ecology (ICIPE), Kenya

GEO GROUP ON EARTH OBSERVATIONS

Working Group on

Land Cover Mapping for Africa

North African network

esa

the TIGER initiative

TIGER AFRICA

The TIGER initiative promotes the use of EO for improved IWRM in Africa. It was launched in 2002 as an international endeavour in response to the needs expressed at the Johannesburg World Summit on Sustainable Development (WSSD) and has been endorsed by AMCOW.

Since 2004, a total of 70 TIGER research projects, led by African scientists, have been assisted with focused capacity building activities to carry out innovative research in exploiting EO satellite data.

These successful research activities sparked and built a growing TIGER network composed by some 150 African water authorities and research institutes.

the TIGER initiative

TIGER AFRICA

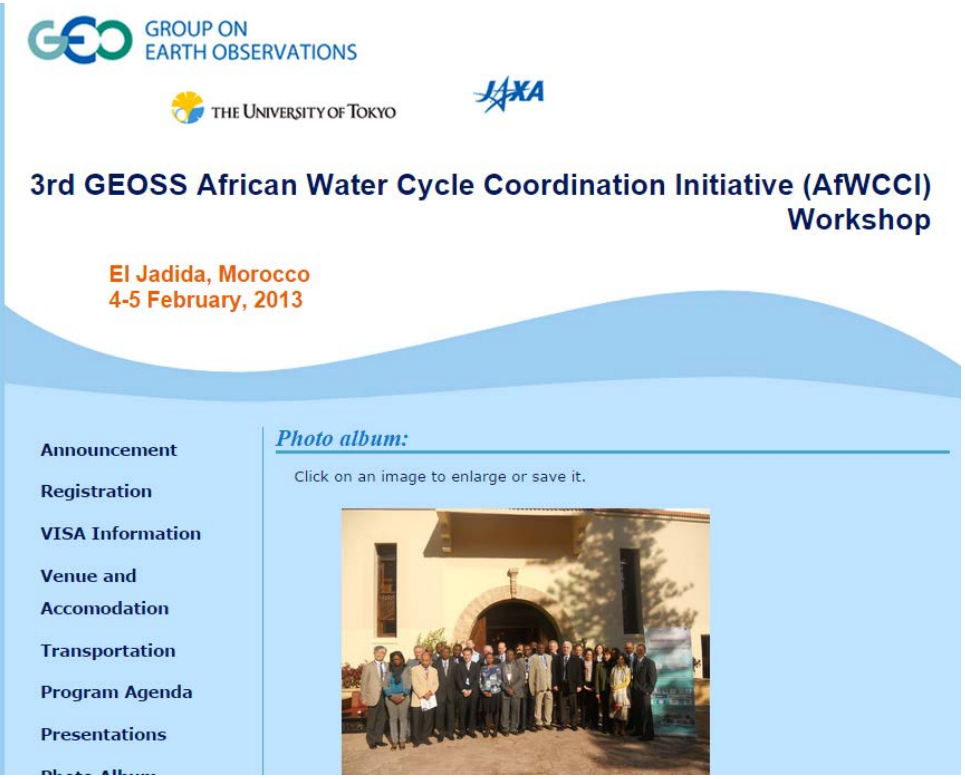
The TIGER initiative promotes the use of EO for improved IWRM in Africa. It was launched in 2002 as an international endeavour in response to the needs expressed at the Johanne[sburg] [World] Sustainable Development [Summit] endorsed by AMCOW.

Since 2004, a total of 70 T[IGER projects], by African scientists, hav[e] focused capacity building [and] innovative research in ex[ploitation]

These successful researc[h projects] built a growing TIGER net[work] 150 African water authorit[ies]

- ✓ **Tiger 1: 2005-2008**
- ✓ **Tiger 2: 2009-2012**
- ✓ **Alcantara: 2012-2013**
- ✓ **Tiger 3: KO meeting, 27-28 November,**

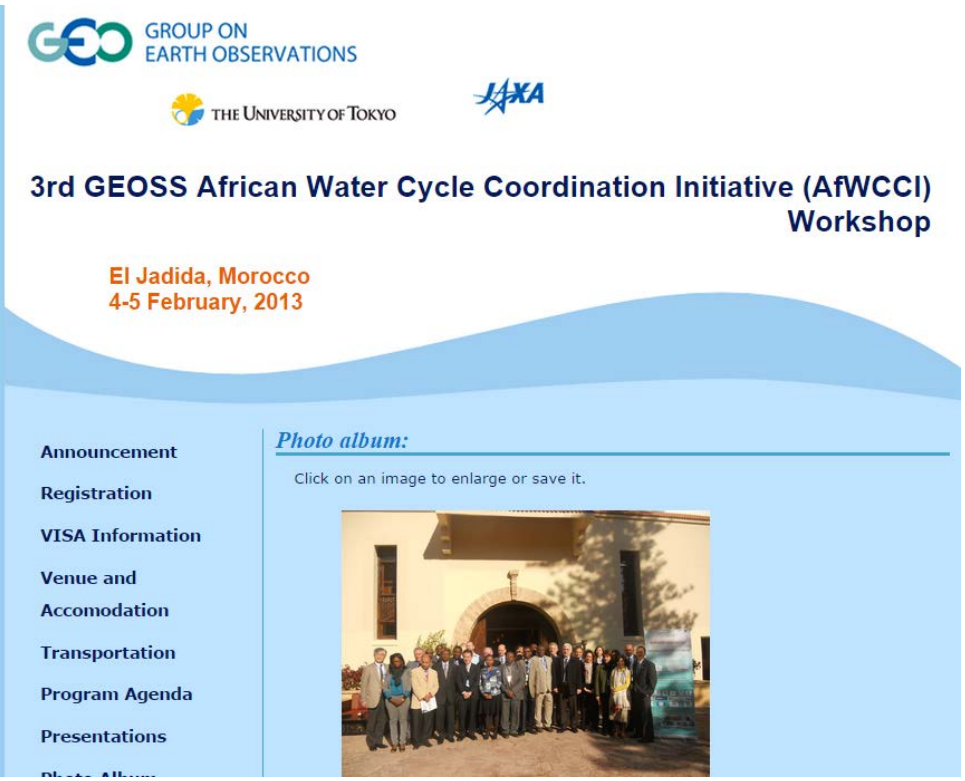
ITC, the Netherlands



- ***To receive updates on various African initiatives***
- ***To develop the first draft of an AfWCCI implementation plan***
- ***To clarify the role of the basin-scale projects in the implementation plan***

Projects from:

- ***Morocco***
- ***Tunisia,***
- ***Kenya***
- ***Niger River Basin***
- ***Volta River Basin***
- ***Lake Chad Basin***



AWCI and AfWCCI started the next phase of implementation planning and a joint Symposium was held to build upon the commonalities of approach and promote an exchange of ideas.

- ***To receive updates on various African initiatives***
- ***To develop the first draft of an AfWCCI implementation plan***
- ***To clarify the role of the basin-scale projects in the implementation plan***

- ***Rifat Hossain***, Chair Task Team, WHO
- ***Rick Lawford***, lead consultant, MSU
- ***Douglas Cripe***, GEO Secretariat
- ***Kamal Labbassi***, Professor, Chouaib Doukkali University, El Jadida, Morocco
- ***Toshio Koike***, Professor, University of Tokyo, Japan
- ***Will Pozzi***, GEO Water Task,
- ***Ghulam Rasul***, Director of the Office of Hydrometeorology, Pakistan
- ***Jiancheng Shi***, Chinese Academy of Sciences, China
- ***Adrian Strauch***, Professor, University of Bonn, Germany
- ***Peter van Oevelen***, Director, International GEWEX Office, Silver Spring, USA
- ***Jaap Schellekens***, Deltares and Vrije Universiteit Amsterdam, The Netherlands
- ***Juli Trtanj***, NOAA, USA
- ***Kym Watson***, Fraunhofer Institute of Optronics, Karlsruhe, Germany
- ***Yijian Zeng***, Researcher, University of Twente, the Netherlands, Netherlands
- ***Graham Alabaster*** and Kate Medlicott (WHO: representing other Task Teams)

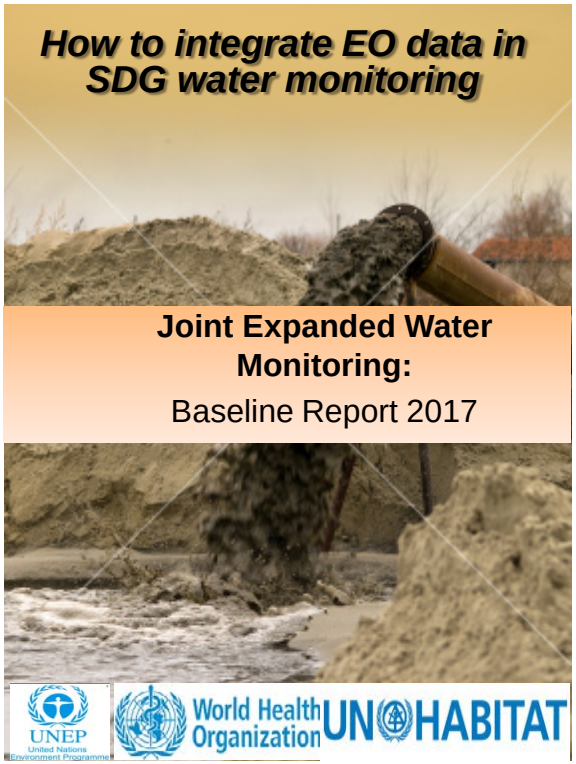
Draft Report

Contributions of Earth observations, Novel Data collection and Data Integration to the Monitoring of Indicators for Sustainable Development Goals and their Targets

Earth Observations, Novel Data collection and Data Integration Task Team

WWWQ indicators

WRM indicators



Sen2-Agri is project launched by ESA, as a major contribution to the R&D component of the GEOGLAM initiative and to the JECAM network activities.

The project will demonstrate the benefit of the Sentinel-2 mission for the agriculture domain across a range of crops and agricultural practices.

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Interfacing the SMAP Cal/Val and Applications Plans

Proposal for The Soil Moisture Active Passive (SMAP) Mission Science Team, NASA Program Announcement Number NNH12ZDA001N-SMAP

Principal Investigator : M. Susan Moran[1,13]

Collaborators:
Prof. Haydee Karszenbaum[2,15]
Prof. Kamal Labbassi[3,11]
Prof. Ahmed Er-Raji[4,11]
Dr. Jose Moreno[5,14]
Dr. Barron Orr[6,12]
Dr. Jeff Walker[7,13,15]
Dr. Massimo Menenti[8,11,14]
Dr. Zoltàn Vekerdy[9,11]
Dr. Hosni Ghedira[10,16]

NASA proposal for the SMAP Science Team

The goal is to provide continuity and guidance to the NASA SMAP Applications Program .

European Commission - Research - Participants
Proposal Submission Forms

Horizon 2020

Call: H2020-WATER-2014-two-stage

SECOND STAGE

Topic: WATER-1a-2014

Type of action: IA

Proposal number: SEP-210185285

Proposal acronym: MOSES

Table of contents

Managing crOp water Saving with Enterprise Services (MOSES)

Put in place and demonstrate at the real scale of application an information platform devoted to water procurement and management agencies to facilitate planning of irrigation

European Commission - Research - Participants
Proposal Submission Forms

Horizon 2020

Call: H2020-WATER-2014-two-stage

SECOND STAGE

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Managing crOp water Saving with Enterprise Services (MOSES)

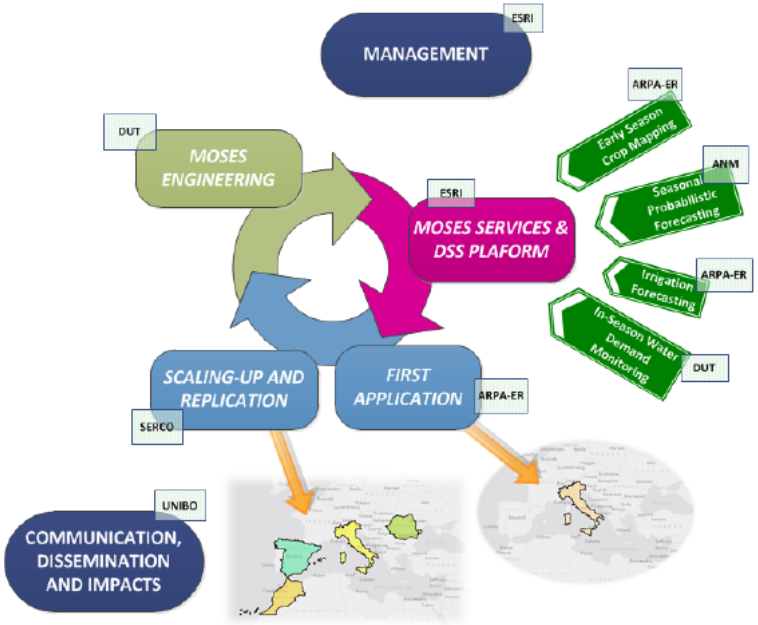

Figure 3: MOSES Work Plan

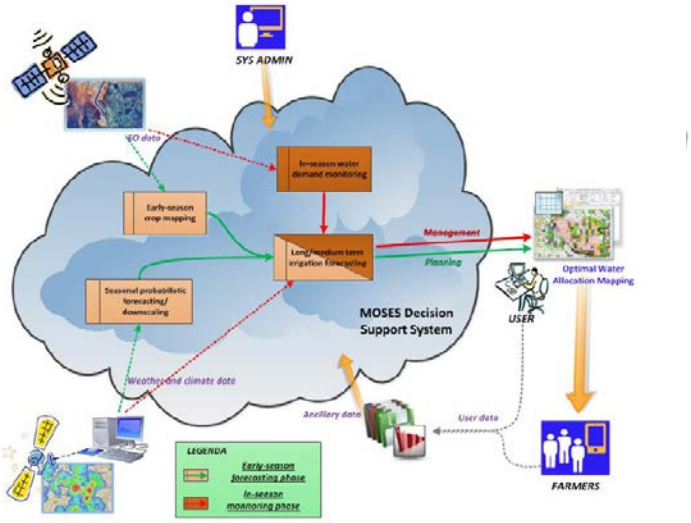

Figure 1: Context diagram of the MOSES platform

The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volum
ISPRS Technical Commission VI Symposium, 19 – 21 May 2014, Wuhan, China

THE DEVELOPMENT OF GEOSPATIAL EDUCATION AND TRAINING AFRICA

Ian Dowman [a] and Kamal Labbassi[b]

[a]Dept. of Civil, Environmental and Geomatic Engineering, University College London, Gower St
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Commission VI, WG VI/3

KEY WORDS: Curriculum, geospatial, North Africa

ABSTRACT:

This paper described the progress in a project funded by the ISPRS Scientific Initiative to develop a curricu
Geospatial Sciences Institute (AGSI) in Tunis. AGSI is a non profit organisation registered in Germany and
developing geospatial capacity in North Africa through training, education and the provision of facilities. The fi
involved a survey of potential stakeholders in North Africa in order to determine the requirements for training
questionnaire sought information on the type of work which organisations in North Africa undertake, and th
who are needed to fill gaps in the skill set required. It also solicited information on the type of training which is
of qualification required. The results from this questionnaire are analysed in the paper which also reports on
stakeholders at a workshop held in Tunis in March 2014, which also resulted in a draft curriculum.

1. INTRODUCTION

development in North Africa by providi
geospatial projects and management t

The primary objective of this project is to support capacity building in North Africa and for the services of trained geospatial professionals and technicians.

isprs
Information from Imagery

DEVELOPMENT OF A CURRICULUM FOR THE AFRICAN GEOSPATIAL SCIENCES INSTITUTE (AGSI)

A Report on the ISPRS Scientific Initiative Project 2014

Ian Dowman and Kamal Labbassi

This report for delivery to AGSI describes the process of developing a curriculum for AGSI and the recommendations that have resulted. The project was funded by the ISPRS Scientific Initiative and has taken six months to complete involving individuals from ISPRS and the North African region. The project involved a questionnaire of stakeholders in the project, a workshop and development of the curriculum.

The contents of the report are as follows:

GEO-GEOSS < > MOROCCO

Many accomplishments and achievements

But also, more constraints and challenges…..

>>> AfriGEOSS

Low level of regional cooperation…

>> establishment of a North African network

>>> AARSE2014 conference (NA)

THANK YOU