

CRASTE-LF's contribution in GNSS Capacity Building in African French-Speaking Countries

Anas EMRAN

**African Regional Centre for Space Science and
Technology Education- in French Language
affiliated to UN**

United Nations/Argentina Workshop on the Applications of Global
Navigation Satellite Systems

Falda Del Carmen, Cordoba, Argentina 19 - 23 March 2018

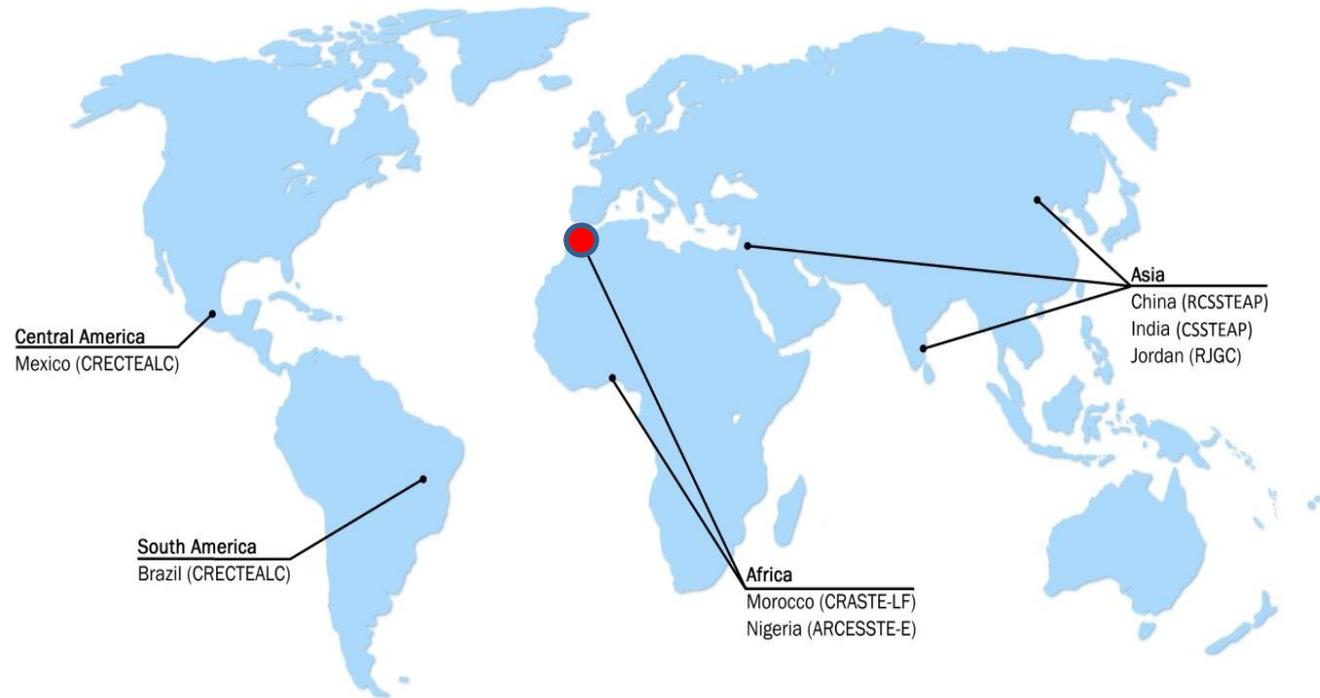


Regional Centres for Space Science and Technology Education
(affiliated to the United Nations)

● The CRASTE-LF was inaugurated in Morocco on 23 October 1998

under the initiative of the UNOOSA /UN General Assembly Resolution

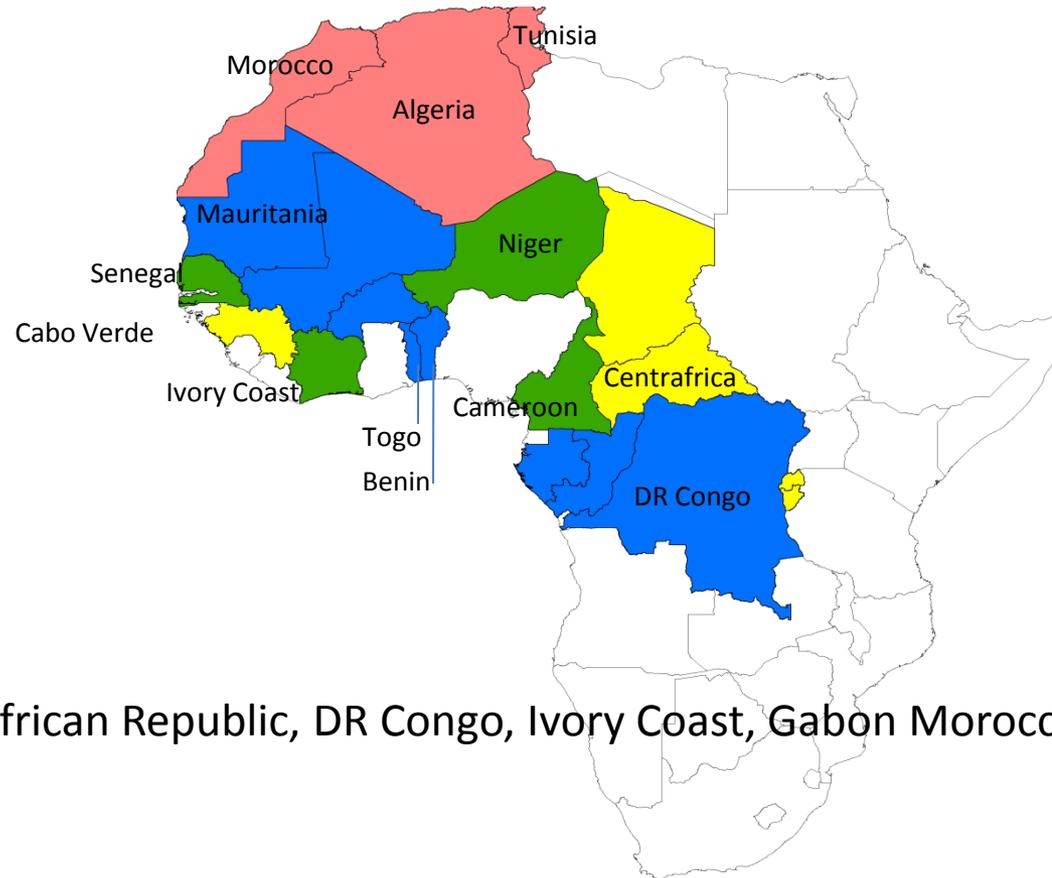
- 45/72 of 11 November 1990
- 50/27 of 6 December 1995



<http://www.unoosa.org/osa/en/ourwork/psa/regional-centres/index.html>



The CRASTE-LF is based Morocco at the Mohammadia School of Engineers of the Mohammed V University of Rabat.



13 Member States

Algeria, Cameroon, Cape Verde, Central African Republic, DR Congo, Ivory Coast, Gabon Morocco, Niger, Senegal, Togo and Tunisia



Objectives of the Centre

- To **increase knowledge** in Space Sciences and Technologies by organizing Postgraduate and/or Short courses, Seminars, Workshops, Conferences at the Regional level.
- To improve the technical **competences** of the **experts, teachers, decision-makers** and to hold them informed about technical progress .
- To **assist** the countries of the region on the development of endogenous capacities in space tools.
- To **Strengthen** the Local and Regional Capacities.
- To promote **Cooperation** between the **Developed Countries** and **States Members** as well as among **these States**.
- To develop **expertise** in Space Sciences and Technology.

Capacity Building





Postgraduate Training courses /Master

Since 2012, CRASTE-LF has agreed its post-graduate training in partnership with the Mohammed V University of Rabat and the Agronomic and Veterinary Institute Hassan II

Each Training Session takes place in 2 phases / in four (04) semesters



Phase I : in CRASTE-LF, theoretical and practical courses, land study and pilot project.



Phase II: 1 semester (6 – 12 months), achieve the Research Project in their institution (their countries).



End of phase II : Defense of Memoire in Centre (Jury Members are Professors and Experts).

Detail of courses : http://www.unoosa.org/osa/en/ourwork/psa/regional-centres/study_curricula.html
& www.crastelf.org.ma





Main Courses Programs

Education Curricula established and Published by UN-OOSA for Regional Centres for Space Science and Technology Education in:



Remote Sensing & GIS



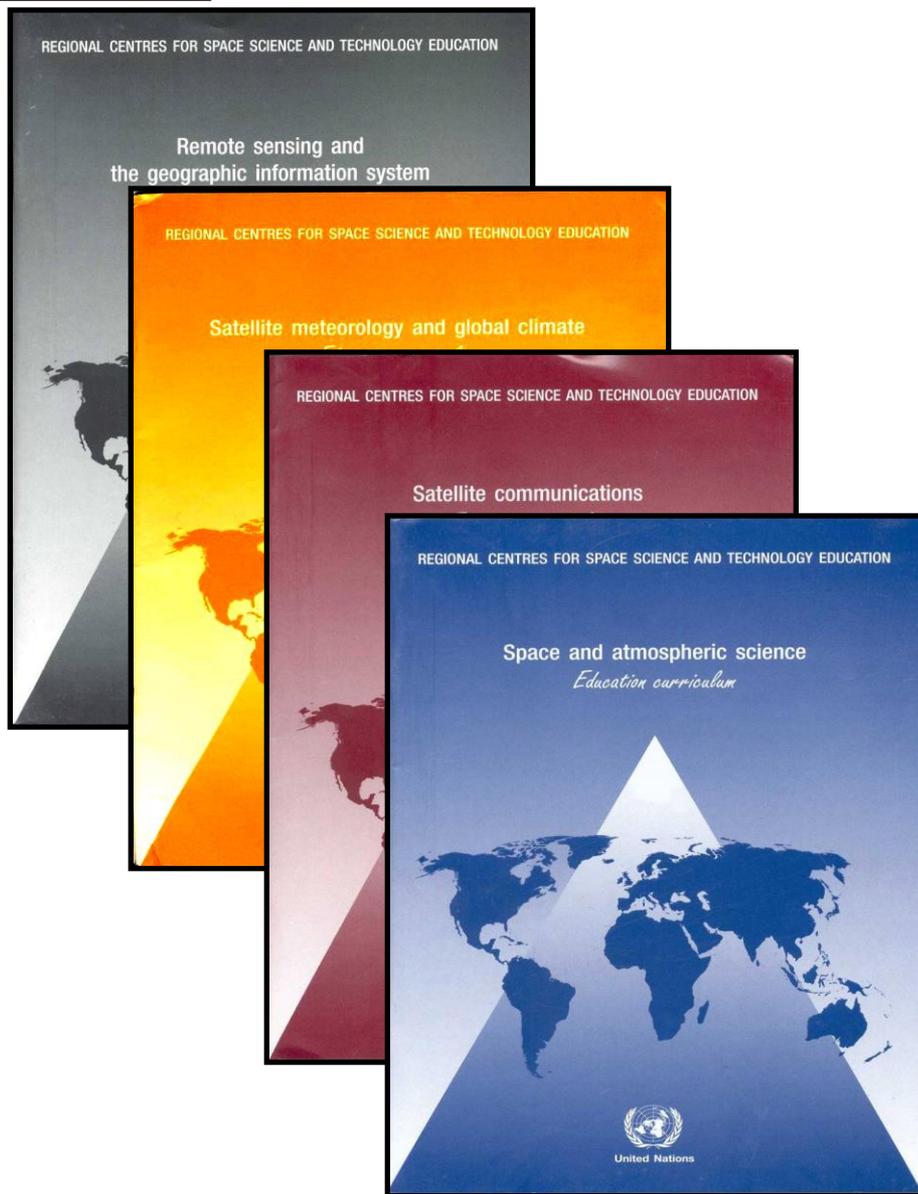
Satellite Communications



Satellite Meteorology & GC



Space and Atmospheric Science





Postgraduate Training courses /Master

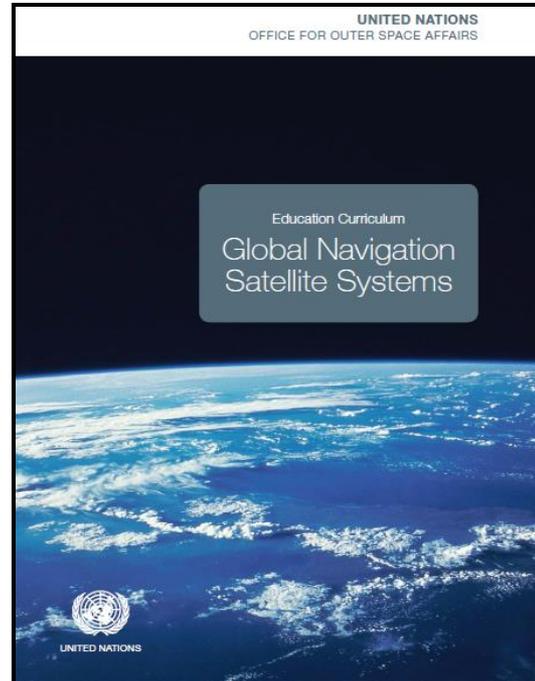
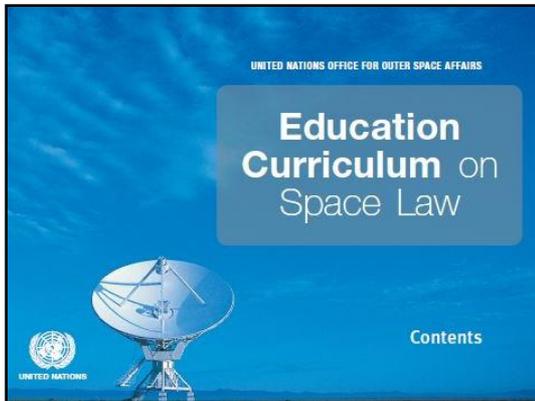
Main Courses Programs



GNSS (Since 2012)



Space Law



http://www.unoosa.org/oosa/en/ourwork/psa/regional-centres/study_curricula.html







in the field







the defenses of memories





Postgraduate Training courses

 Remote Sensing & GIS – **13 sessions / 237 trainees**

 Satellite Meteorology & Global Climate - **5 sessions / 52 trainees**

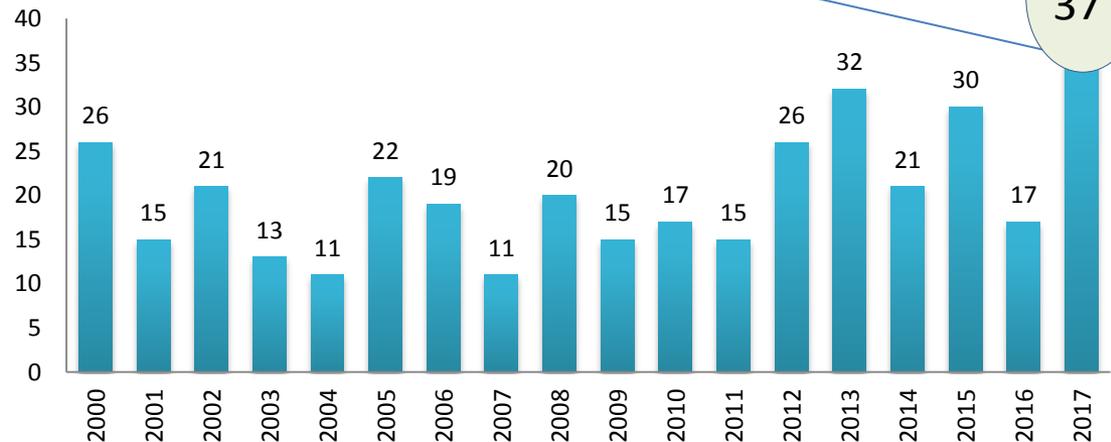
 Satellite Communications – **3 sessions / 38 trainees**

 Space Science and Atmospheric

 GNSS (Since 2012) – **3 sessions / 41 trainees**

 Space Law

Since 2000
24 sessions - 368 trainees
22 Countries

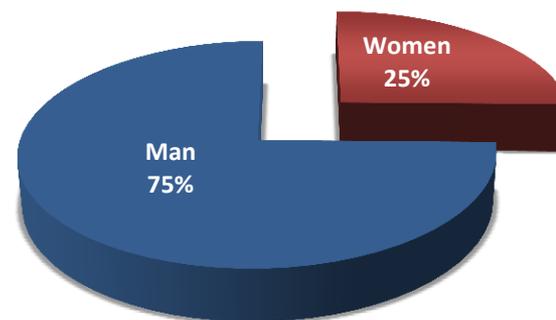
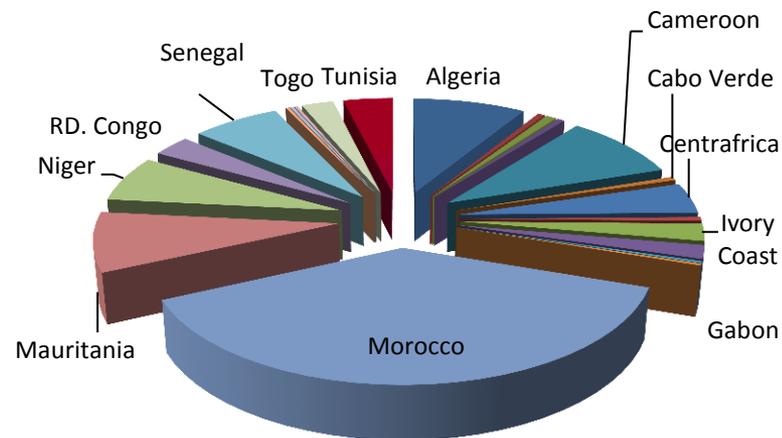




Postgraduate Training courses /Master

Étiquettes de lignes Nombre de stagiaires par Pays

Algérie	32
Bénin	2
Burkina Faso	3
Burundi	2
Cameroun	34
Cap Vert	2
Centrafrique	16
Congo (Brazzaville)	2
Côte d'Ivoire	9
Gabon	7
Madagascar	1
Mali	1
Maroc	140
Mauritanie	31
Niger	25
RD. Congo	11
Sénégal	25
Swaziland	1
Syrie	1
Tchad	1
Togo	9
Tunisie	14
Total général	368



Gendre %

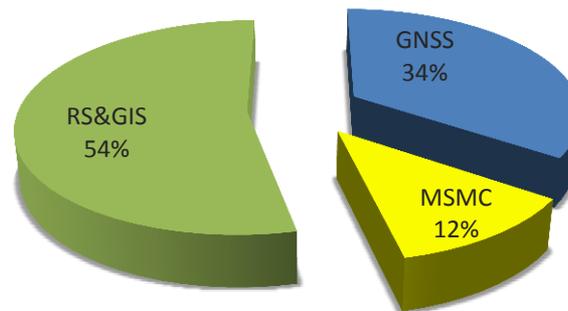




Postgraduate Training courses

Total number of trainees by options

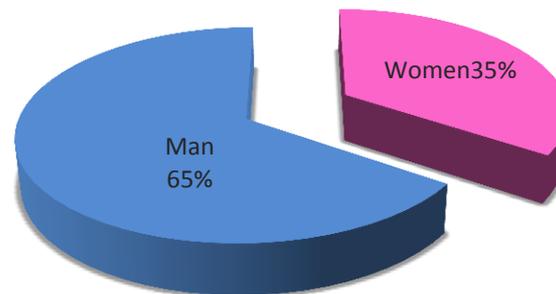
GNSS	29
MSCM	10
T&SIG	45
Total	84



By option %

Distribution of trainees by gender

Women	29
Man	55



By Gender %





Short courses, Seminars, Workshops and Conferences

54 activities in space technologies (Short courses, Seminars, Workshops and Conferences).

Thematic :

Climate change
water resources
Agriculture
Health
....

Biodiversity
Drought
Disasters
GNSS
....





Short courses, Seminars, Workshops and Conferences

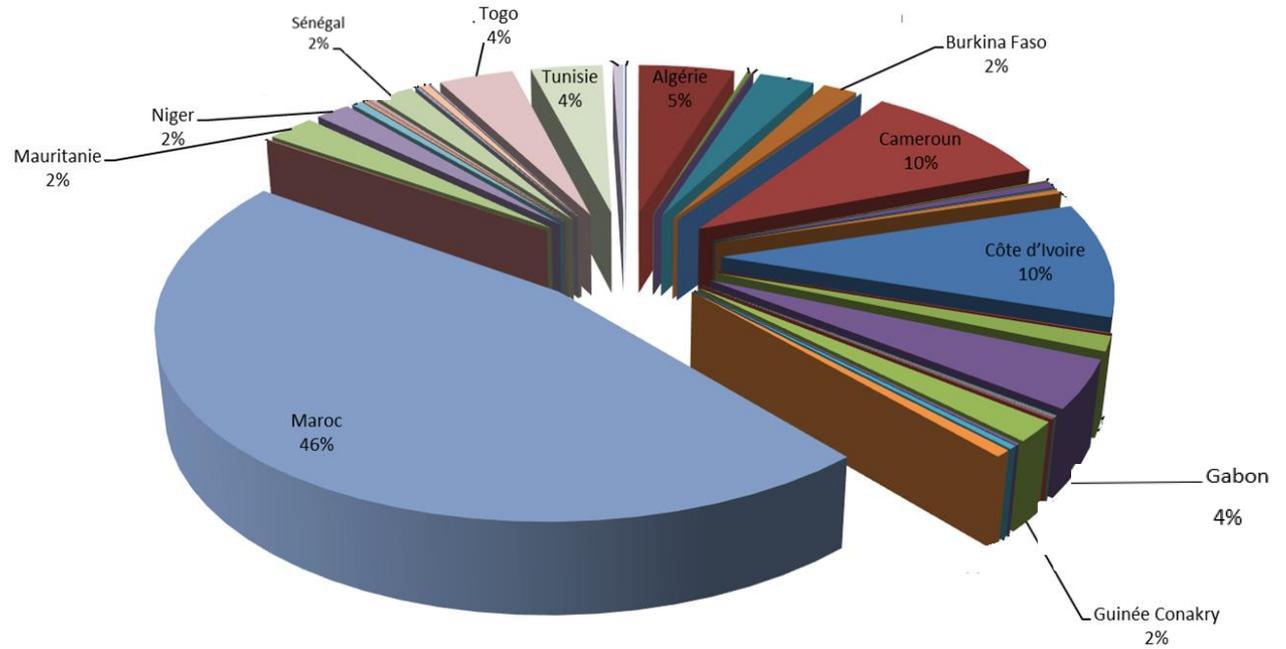
Conferences

2010-2017

- **29** conferences

- **2074** participants

- **40** countries





Short courses, Seminars, Workshops and Conferences

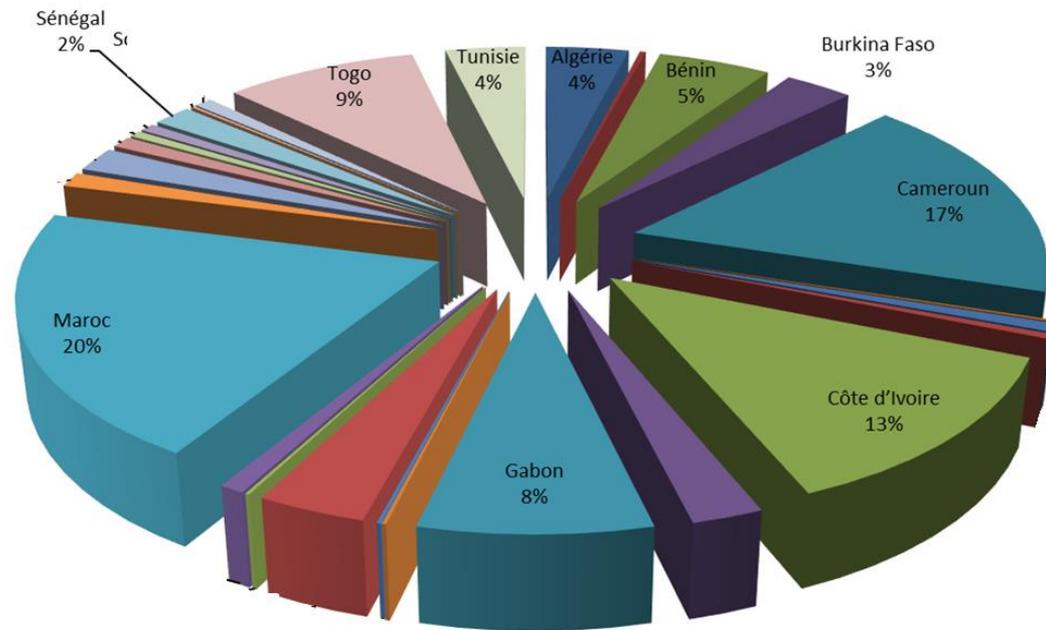
2010 -2017

-25 Short Courses

-725 participants

- 27 countries

Short courses



Regional workshop - GNSS services Lomé (Togo) - 2011



Whorkshop _ Baidou GNSS – CRASTE-LF- Rabat (Morocco) 2014



GNSS Material BEIDOU



Whorkshop & Regional conference - Space weather – CRASTE-LF- Rabat (Morocco) 2015



Whorkshop _ GLONASS GNSS – CRASTE-LF- Rabat (Morocco) 2016



Whorkshop _ GPS-Ionosphere– CRASTE-LF- Rabat (Morocco) 2017



3th Space weather School « ISWI-Maghreb-Afrique de l'Ouest » IMAO – Abidjan Ivory Coast - 2017





Short courses, Seminars, Workshops and Conferences

7 Activities in 2018

1. **Regional Workshop : ‘GNSS BEIDOU’ in collaboration** with RCSSTEAP-China **April Rabat (Morocco)**
2. Regional Workshop : ‘3D forest mapping from Lidar data and optical satellite imagery in collaboration’ with ISESCO and Cameroon authorities **May Yaoundé (Cameroon)**
3. International Conference ‘African Large Rivers Basin Hydrology’ with Medfriend **May Algiers (Algeria)**
4. **Regional Workshop : ‘GNSS applications’ in collaboration** with ISESCO **July Ouagadougou (Burkina Faso)**
5. Regional Workshop : ‘Applications of Remote sensing and GIS in Earth Sciences’ in collaboration with AIDMO **September Rabat (Morocco)**
6. Regional Workshop : ‘Microsatellite and nano satellite technologies’ in collaboration with RCSSTEAP-China **October Rabat (Morocco)**
7. **Regional Workshop : ‘GNSS applications’ in collaboration** with JPO (Joint Programme Office) & Egnos-Africa **November Dakar (Senegal)**





The dissemination of EO information & CB



- By putting data and educational resources created in the scientific events on the CRASTE-LF website crastelf.org.ma :

Centre Régional Africain des Sciences et Technologie de l'Espace en Langue Française
Affilié à l'ONU

Accueil | **Formation** | Conseil d'administration | Produits OT

Formation

Le programme de formation du centre est orienté vers la diffusion des connaissances dans le domaine des sciences et tech l'espace. Initialement, le centre devra offrir un enseignement en profondeur, un programme global de formation et les bases des projets pilotes , une formation continue, une perception et évaluation des programmes. Ce programme bénéficiera des spécialistes et professionnelles touchant la technologie spatiale.

Le centre offre des cours de formation pour les universitaires, chercheurs, administrateurs suivantes:

1. **Télétection et système d'information géographique**
2. **Télécommunications par satellite**

Produits OT

- Scientifique
- Organisation
- Géographique**
- rapports didactique

Télécharger d'images satellitaires
Logiciels libres pour SIG
Antenne ICG
Antenne LANDSAT

The CRASTE-LF is trying to conduct a data dissemination policy adapted to the region





- By establishing the link with other geoportals such as the GEOCAB, GEOSS etc

Conseil d'administration | Produits OT

Produits OT

- Scientifique
- Organisation
- Géographique >
- Supports didactique

- Afromaison
- IASON
- EOPOWER
- GEO / GEOSS
- GeoNetcab
- MEDINA
- SIGMED
- SAWIS



● - By developing Open Geoportal Data



Approche Spatialisée de l'Impact des activités agricoles au Maghreb sur les transports solides et les ressources en Eau De grands bassins versants

ENGLISH FRANÇAIS

HOME PROJECT DATA AND GIS PICTURES

You are here: [Accueil](#) > [Data and GIS](#) > The maps

The maps

SIGMED GEOPORTAL (Bouregreg Success Story - Morocco)

MAPS

The contour of the basin, click on:

Administrative divisions click on:

Pedology, click on:

vegetation click on :

The hydrographic network click on:

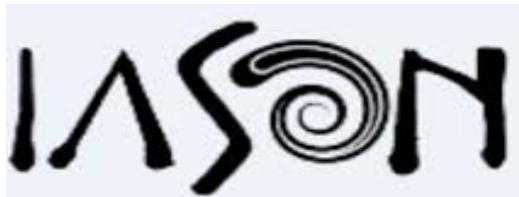
Geology click on :

Bouregreg Sub-basins click on:





Participation in some European Research Program (FP7 and H2020) by promoting the Earth Observation for development in the African countries



participation in several funded projects



Merci
Thank you for your attention



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