

# The contribution of African Regional Centre for Space Science and Technology Education- in French Language

## to capacity building in Space Education in African French-speaking countries



Affiliated to UN

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



The CRASTE-LF was established 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



### 13 Member States

Algeria – Cameroon - Cape Verde - Central African Republic - DR Congo - Côte d'Ivoire - Gabon  
Morocco – Mauritania – Niger - Senegal – Togo - Tunisia





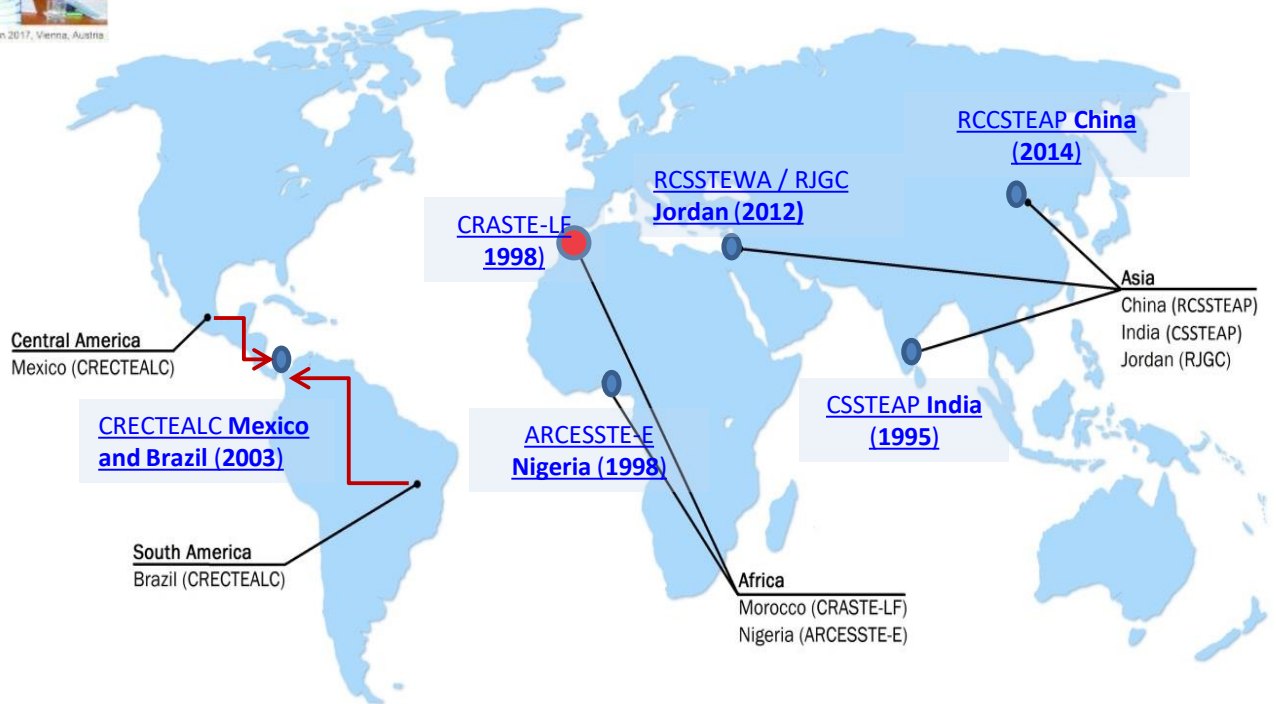
Meeting of the Directors, Jun 2017, Vienna, Austria

Jun 2017



Alliance of Regional centres affiliated to the UN

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



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



## 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.
- **Provide advisory services to Member States** and regional institutions that have made the request.
- **Collect and disseminate information** related to space and space technologies.

**Capacity Building**





# Postgraduate Training courses /Master

## 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 Meteorology & GC**



**Satellite Communications**



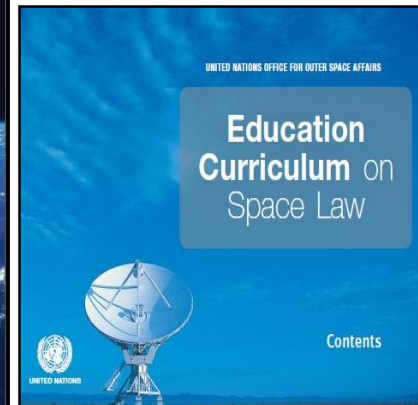
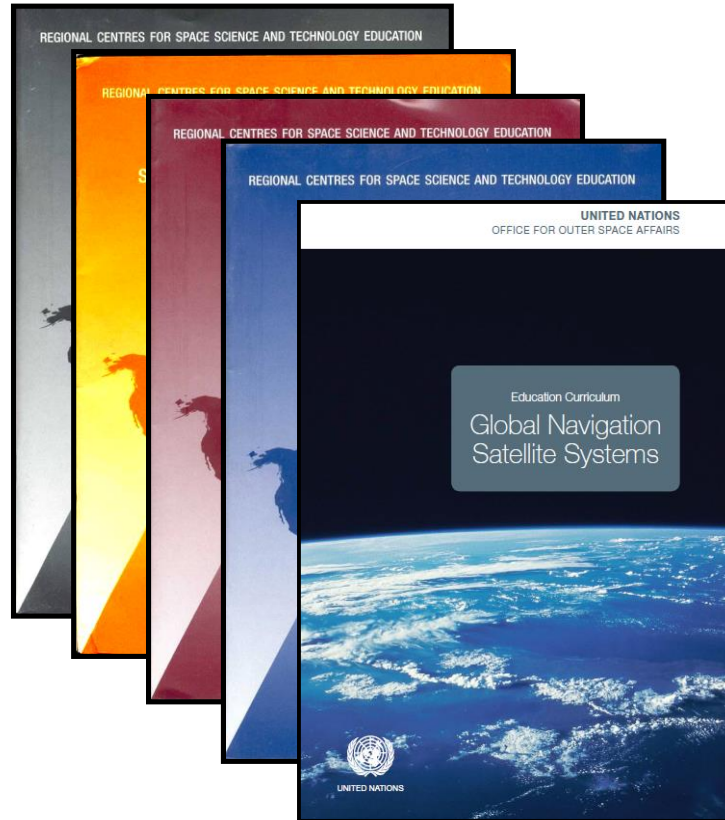
**Space and Atmospheric Science**



**GNSS**





**Space Law**





## Postgraduate Training courses

 Remote Sensing & GIS – **14 sessions / 254 trainees**

 Satellite Meteorology & Global Climate - **7 sessions / 63 trainees**

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

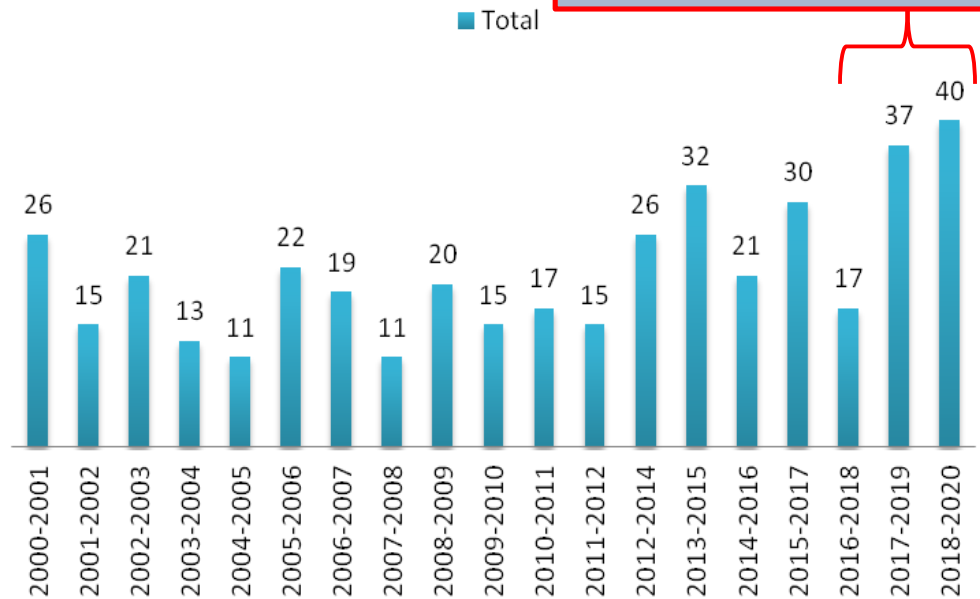
 Space Science and Atmospheric

 GNSS (Since 2012) – **4 sessions / 53 trainees**

 Space Law

77 students enrolled in the Master for 2018 en R-GIS, MSGC & GNSS

Since 2000  
**27 sessions - 408 students**  
**22 Countries**





## 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**

Inscription 2017 - 2019  
 Master en Sciences et Technologies de l'Espace  
 \*Obligatoire  
 Adresse e-mail \*  
  
 Votre adresse e-mail




Prénom \*

Votre réponse  
 Nom \*

Votre réponse  
 Surnom

Votre réponse  
 Date de naissance \*  
 Date

Lieu de naissance

Votre réponse




### Appel à candidature

MASTER EN SCIENCES ET TECHNOLOGIES DE L'ESPACE  
 - Session 2017 - 2019 -

Options

Télédétection et SIG (T&SIG)

Météorologie par Satellite et Climat Mondial (MSCM)

Systèmes Mondiaux de Navigation par Satellites (GNSS)

Centre Régional Africain des Sciences et Technologies de l'Espace en Langue Française, affilié à l'ONU

**Online registration**  
<http://crastelf.org.ma/>  
**Obligatory : Letter of sponsorship**





# Postgraduate Training courses /Master

## Theoretical class - Practical work



in the centre (CRASTE-LF)





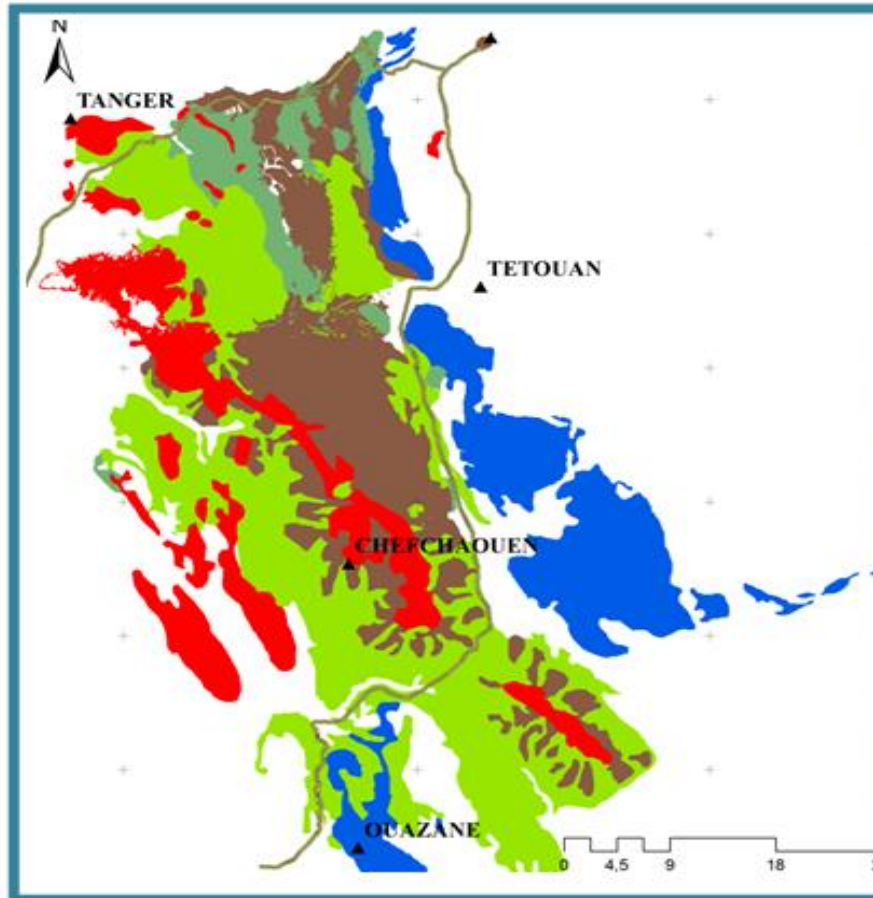


# Postgraduate Training courses /Master

## Field trip - Geology



- Géologie du Rif Occidental : coupe Chefchaouen – Oued Laou





# Postgraduate Training courses /Master

## Field trip - port infrastructure

Port industriel Tanger-Med





## Postgraduate Training courses /Master

### Participation in scientific events

**Regional Workshop : ‘Sentinel Satellite Images for Sustainable Development’ CRTS and CNES 6-7 March 2018 Rabat**



**International Conference on Adaptation Metrics & Techniques for Water, Agriculture & Resilient Cities’ KSF SPACE 24-25 October 2018 Ben Guerir**



**International Conference : ‘Space For Sustainable development’ UMP6 19-24 2018 November Rabat**



**7 scientific events in 2018**





## Postgraduate Training courses /Master

Number of students trained at the Center per country

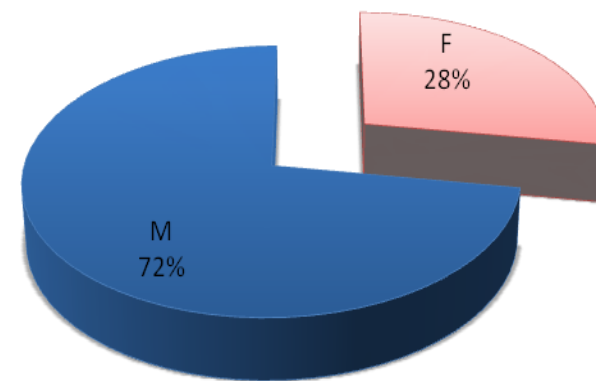
By country	
Algeria	33
Benin	3
Burkina Faso	3
Burundi	2
Cameroon	37
Cabo-Verde	3
Centrafica	18
Congo (Brazzaville)	3
Côte d'Ivoire	10
Gabon	9
Madagascar	1
Mali	1
Morocco	157
Mauritania	34
Niger	26
RD. Congo	10
Senegal	28
Swaziland	1
Syria	1
Chad	1
Togo	11
Tunisia	16

**408**



A l'occasion de la journée internationale de la femme 2019

le  *au féminin !*



**Genre %**





## Short courses, Seminars, Workshops and Conferences

### **51 activities in space technologies between 2010 – 2018 Organized in 10 countries**

Burkina Faso – Cameroon – Cote d'Ivoire - Gabon – Guinea  
Mauritania - Morocco – Senegal – Togo - Tunisia

#### **Thematic :**

Climate change  
water resources  
Agriculture  
Health

Biodiversity  
Drought  
Disasters  
**GNSS**

....

....

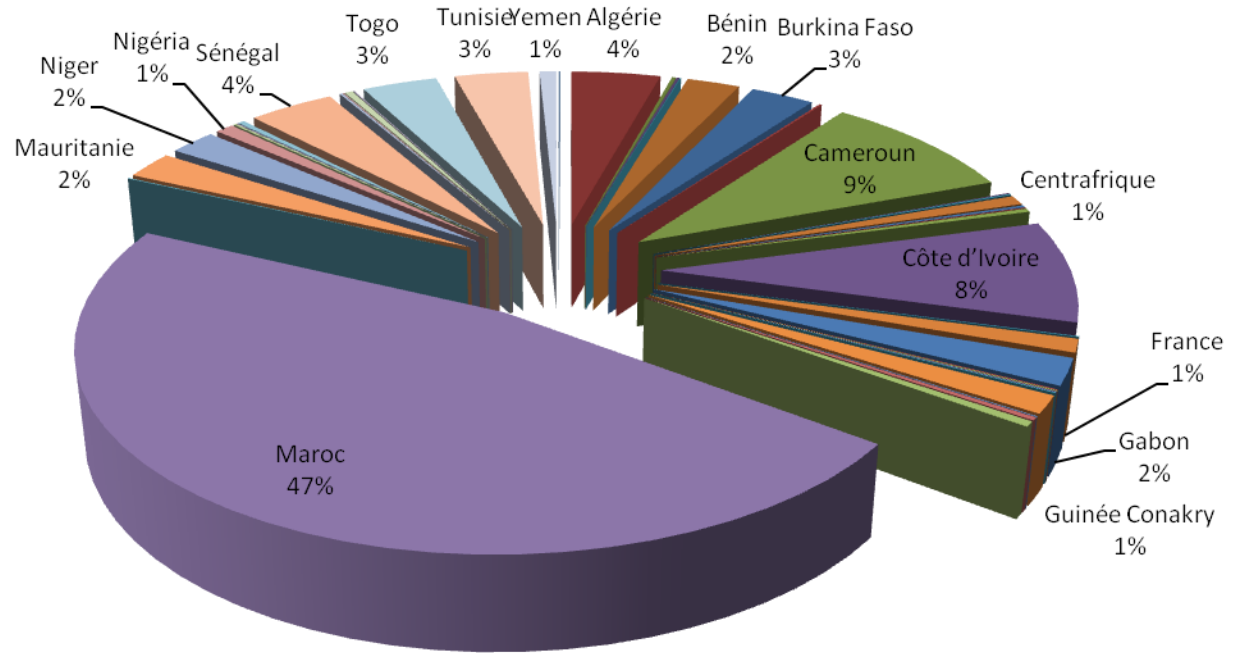




## Short courses, Seminars, Workshops and Conferences

**2010-2018**

- **24** conferences
- **1658** participants
- **43** countries



**Conferences**

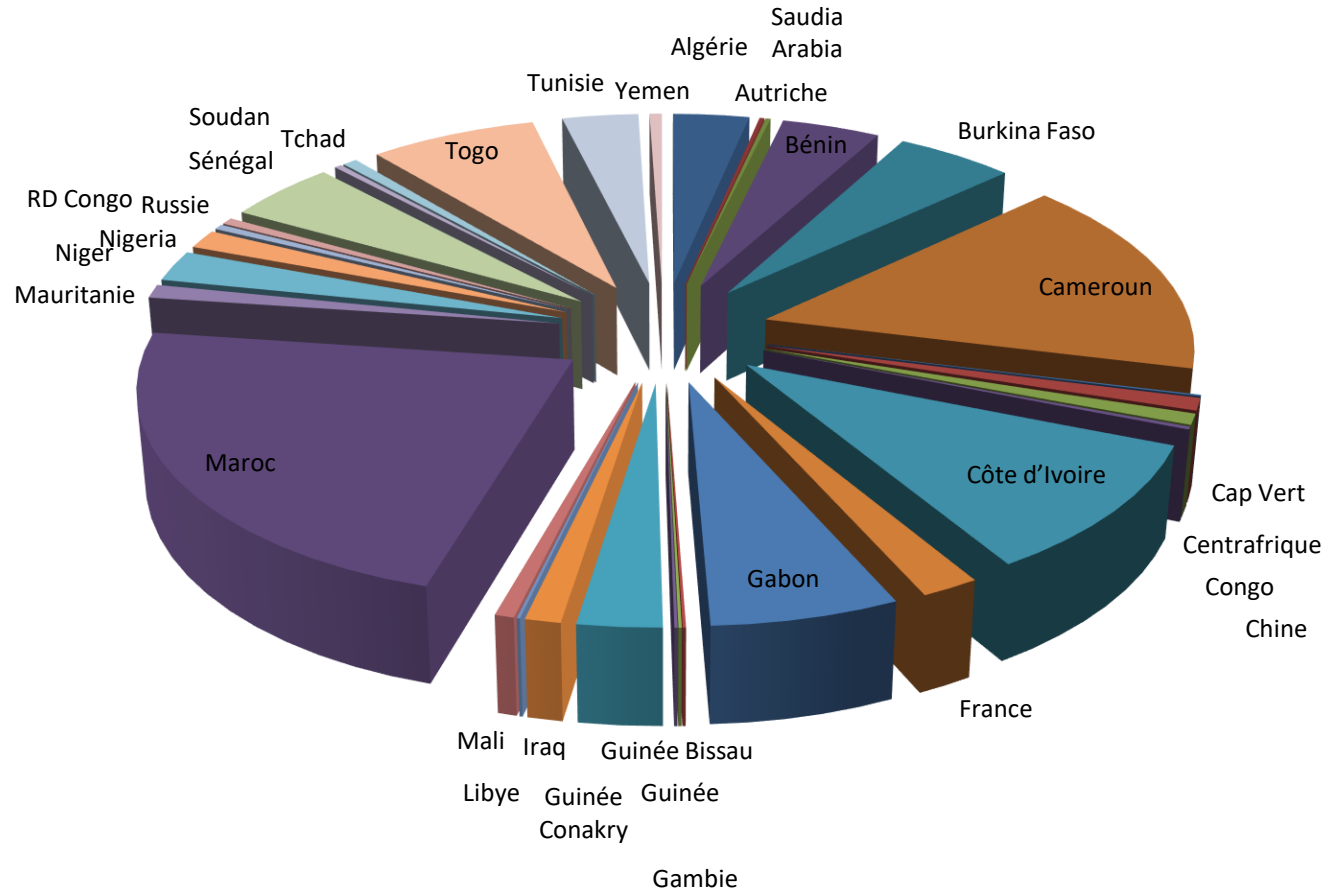




# Short courses, Seminars, Workshops and Conferences

**2010-2018**

- **27** short activities
- **935** participants
- **31** countries



## Short activities





## Short courses in 2018

3D forest mapping from Lidar data and optical satellite imagery  
2-4 May **Cameroun**



GNSS Fondements & applications  
9-12 July **Burkina Faso**



3 Regional Workshops outside the CRASTE-LF

GNSS – SBAS  
13-15 November **Senegal**







# Short courses in 2018



2 activities with RCSSTEAP-China  
Beihang University

## GNSS – BEIDOU (BDS) in collaboration 26-28 April

## Microsatellite & nano satellite technologies 22-26 October



# Applications of Remote sensing & GIS in Earth Sciences

10-14 December **Morocco**



# African Large Rivers Basin Hydrology'

06-08 May **Algeria**





## Short courses in 2018

**TEANGEO – Advanced  
Geospatial Science &  
Technology 10-28  
September Tunisia**



**Space For Sustainable  
development 19-24  
November Morocco**

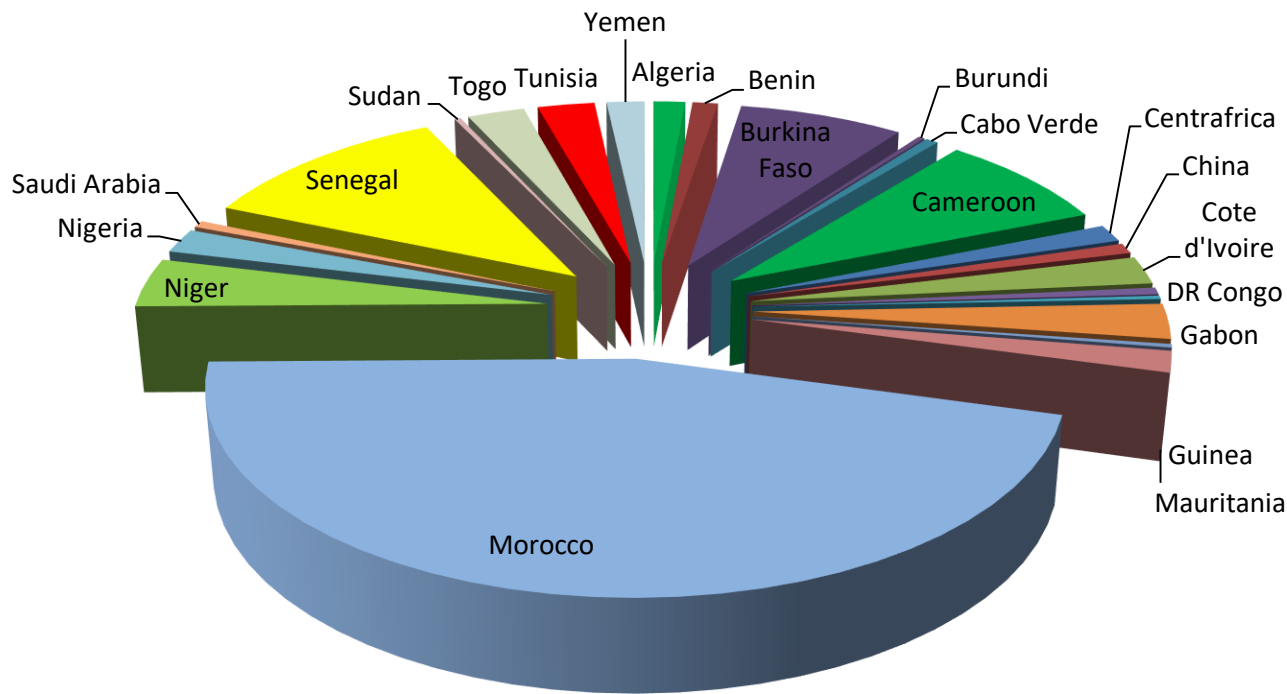




# Short courses in 2018

Participants / Countries	
Algeria	5
Benin	4
Burkina Faso	26
Burundi	1
Cabo Verde	2
Cameroon	28
Centrafica	5
China	3
Cote d'Ivoire	8
DR Congo	2
France	1
Gabon	10
Guinea	1
Mauritania	6
Morocco	159
Niger	14
Nigeria	7
Saudi Arabia	2
Senegal	40
Sudan	1
Togo	9
Tunisia	9
Yemen	6
<b>Total</b>	<b>349</b>

**5 Conferences in 2018**  
**349 participants - 23 countries**

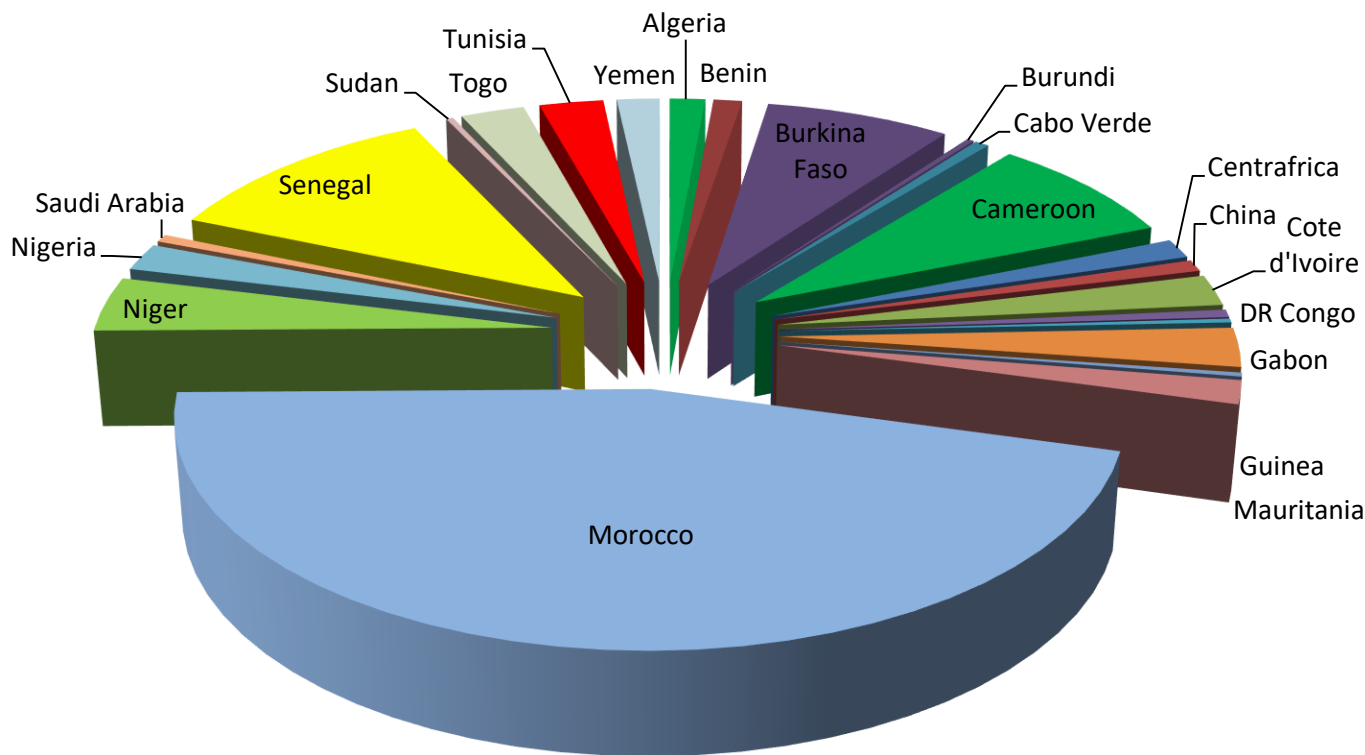




# Short courses in 2018

Participants / Countries	
Algeria	3
Benin	2
Burkina Faso	25
Cemeroon	21
Centrafica	4
Côte d'Ivoire	4
Gabon	3
Guinea	1
Iraq	11
Morocco	64
Maurirania	1
Niger	8
Nigeria	7
Saudi Arabia	2
Senegal	31
Sudan	2
Togo	3
Tunisia	4
Yemen	5
<b>Total</b>	<b>201</b>

**6 short activities in 2018**  
**201 participants - 19 countries**





# The dissemination of EO & CB



- By putting data and educational resources created in the scientific events on the CRASTE-LF website [crastelf.org.ma](http://crastelf.org.ma) :

The crust is trying to conduct a data dissemination policy adapted to the region

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





# Participation in some Research Program by promoting the Earth Observation for development in the African countries



participation in several funded projects





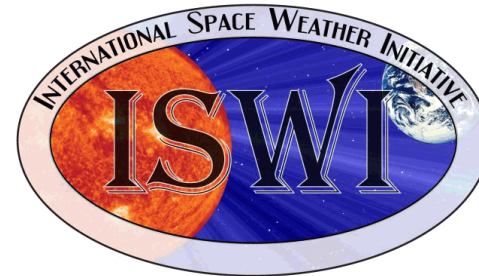
## Cooperation

International

Regional and International organisations



**UNOOSA**



### Centres Régionaux

*CSSTE-AP - India*

*CSSTE-EL - Nigéria*

*CRECTEALC - Mexique*

*RCSSTEWA - Jordanie*

*RCSSTEAP - Chine*



*Alliance des Centres  
Régionaux affiliés à l'ONU*







# Cooperation

## International

## Regional and International organisations





# Cooperation

National

National organisations and institutions



Office National des Oeuvres Universitaires, Sociales et Culturelles



جامعة محمد الخامس بالرباط  
Université Mohammed V de Rabat



# Merci

## Thank you for your attention



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