



AGENCE SPATIALE ALGERIENNE

EARTH OBSERVATION ACTIVITIES AT THE ALGERIAN SPACE AGENCY

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Joint Workshop of the GOFC-GOLD SCERIN and MedRIN Networks

CHANIA, Greece, July 16-19, 2024

Algerian Space Agency – Overview & missions



Promoting and developing space activities under the supervision of the Algerian Government

Algerian Space Agency – Overview & missions

Overall impacts:

- Reinforcing national sovereignty;
- Sustainable development;
- Mastering of space technology.

Specific impacts:

- Improving the natural resources management and major risks mitigation;
- Developing national capabilities in space applications;
- Promoting the use of space technology in different fields.

Algerian Space Agency – NSP 2040

ACTIONS AROUND 6 MAIN PILLARS



CONSOLIDATE 6 MAJOR AREAS (CHALLENGES) OF DEVELOPMENT

AGRICULTURE, FOOD SECURITY, DESERTIFICATION

TERRITORIAL GOVERNANCE

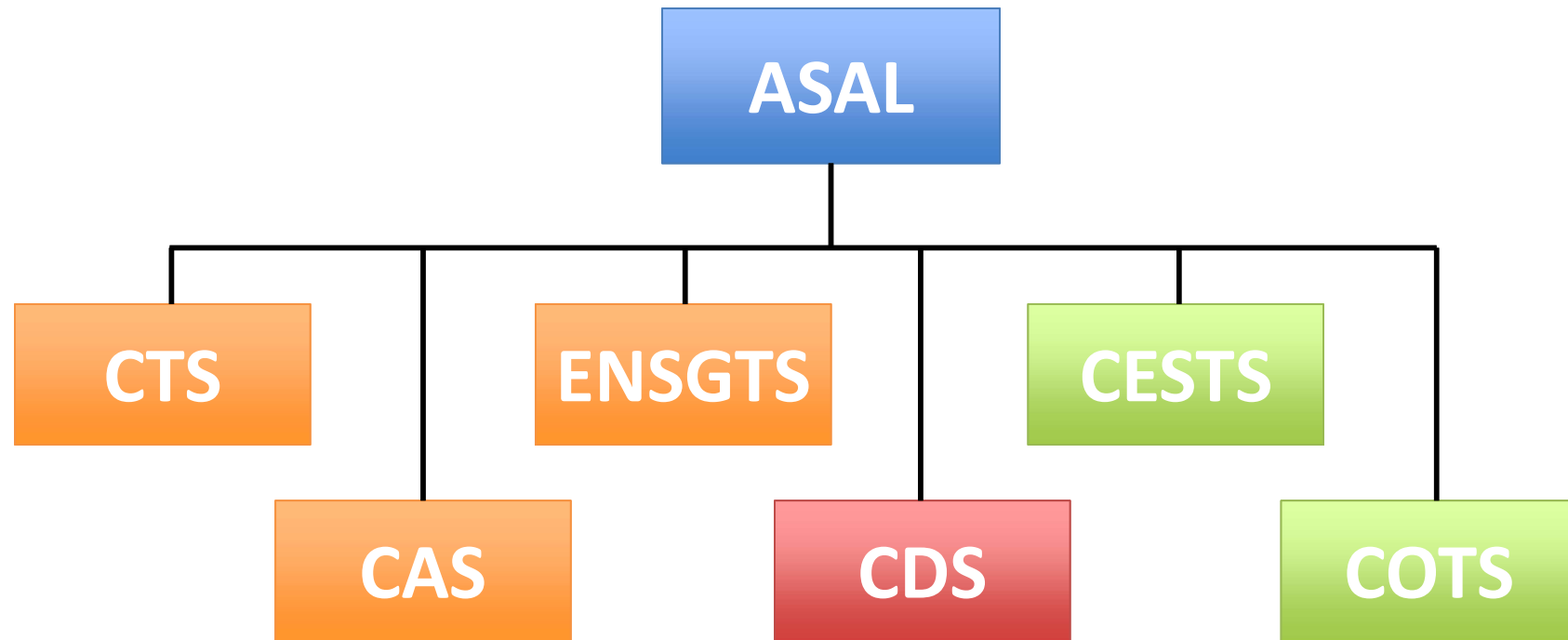
MINING AND ENERGY

METEOROLOGY, CLIMATE CHANGE, ENVIRONMENT, MAJOR RISKS

KNOWLEDGE SOCIETY & DIGITAL DEVELOPMENT

SPACE ECONOMY AND LAW

Algerian Space Agency – Organization

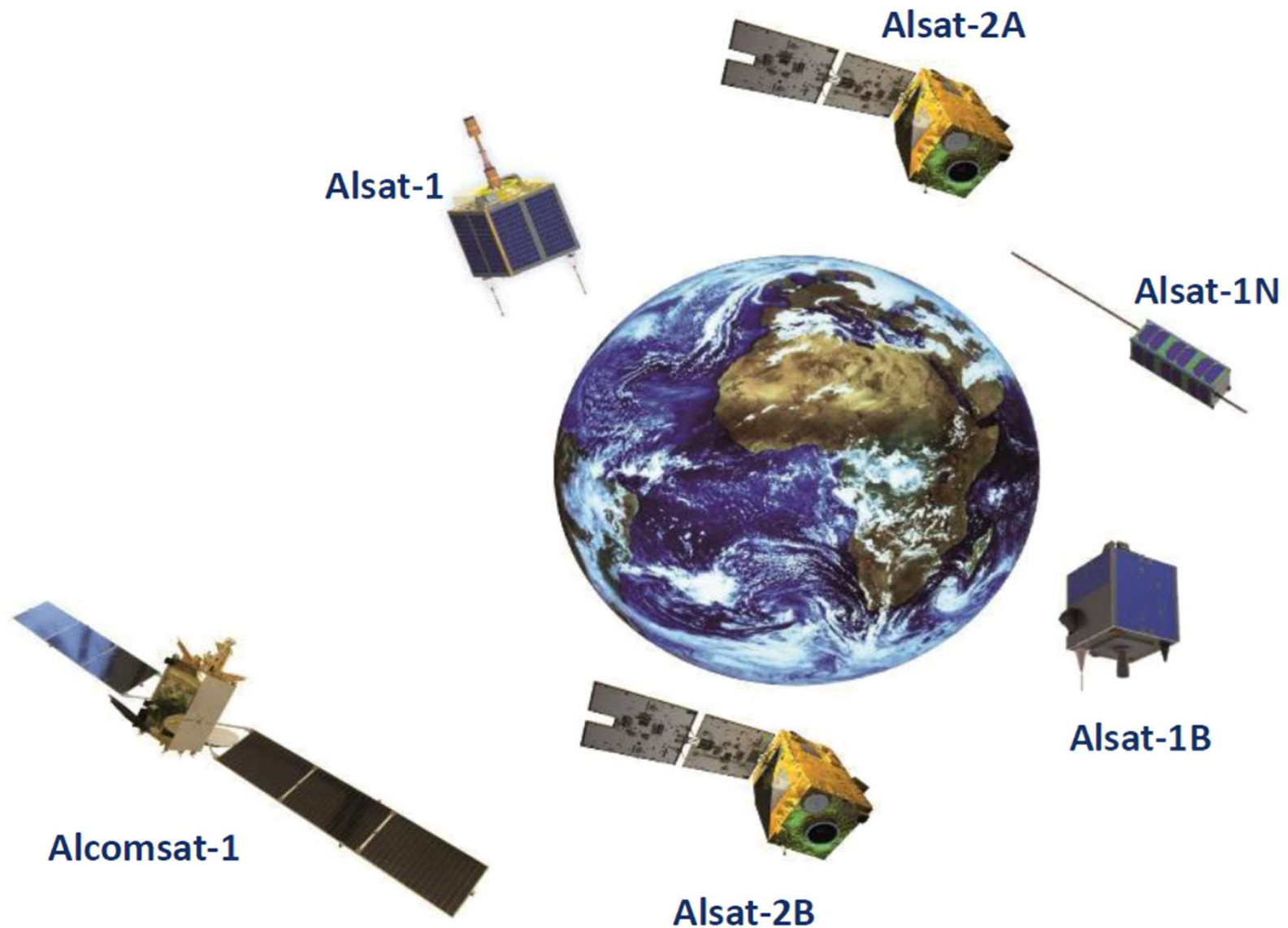


R&D – Training: Earth Observation/GNSS/GIS/Space Applications

Technology: Satellite development/operations

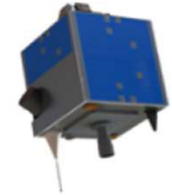
Space telecommunication: Operations KU/KA, products & services

Algerian Space Agency – Space system capabilities

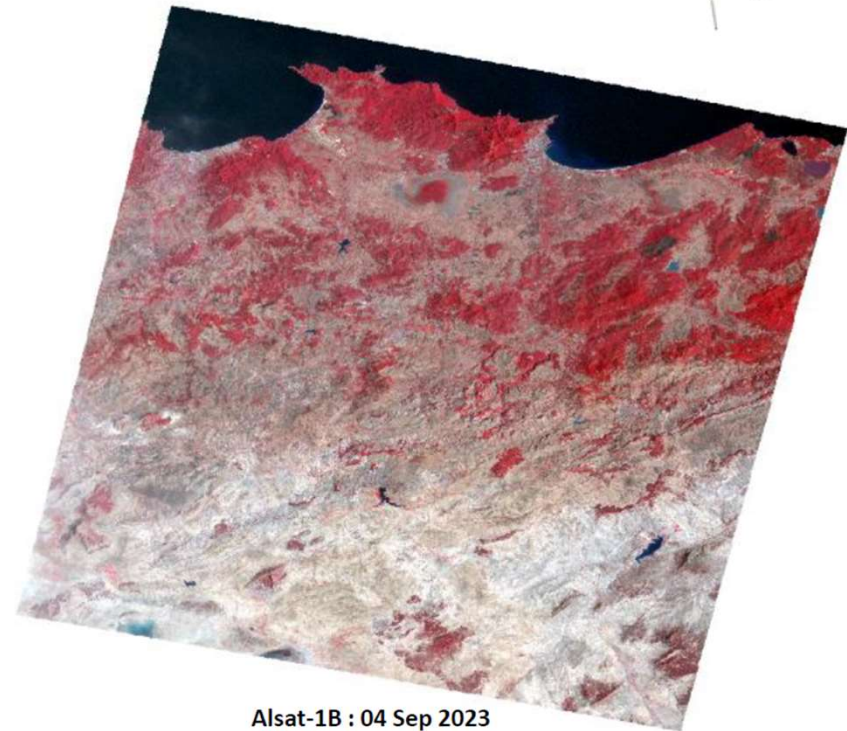


Algerian Space Agency – Space system capabilities

ALSAT-1B



Overview Alsat-1B	
Mission type	Earth Observation (Operational)
Orbit	670 km, sun-synchronous
Launch date	26 September 2016
Life time	05 years
Mission purpose	Naturel Disaster Management
Product characteristics	
Ground resolution	12m panchromatic
	24 m multi-spectral (in normal mode)
	12 m multi-spectral (in augmented mode)
	Blue, Green, Red & InfrRed
Swath width	140 km
Mosaic	140 km x 140 until 2000 km, PAN, MS, PAN + MS
Acquisition Capacity	40 scenes per day (in standard mode)

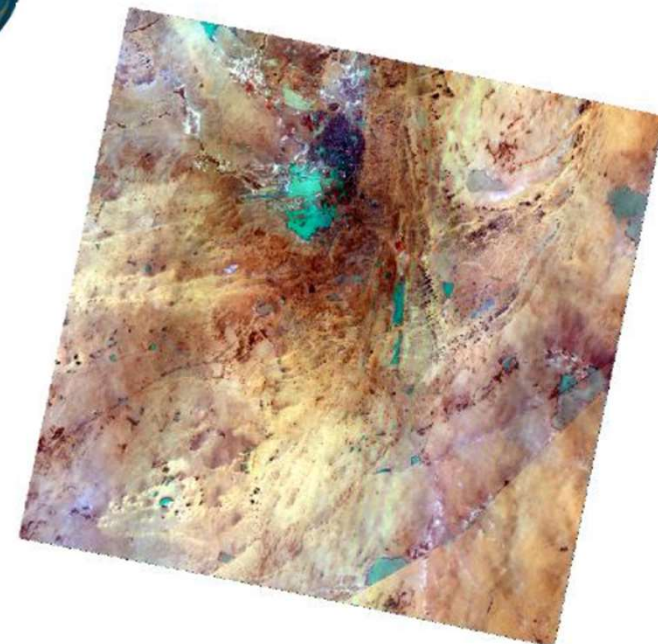
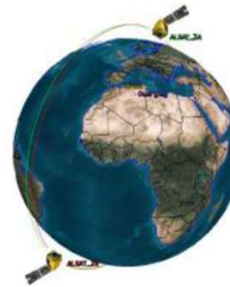


Alsat-1B : 04 Sep 2023

Algerian Space Agency – Space system capabilities

ALSAT-2A & ALSAT-2B

Overview Alsat-2A & Alsat-2B	
Mission type	Earth Observation (Operational)
Orbit	670 km, sun-synchronous
Launch date	Alsat-2A : 12 July 2010 Alsat-2B : 26 September 2016
Life time	05 years
Mission purpose	Cartography, agriculture, water & oil resources monitoring
Product characteristics	
Ground resolution	2,5 m panchromatic
	10 m multi-spectral :
	Blue : 450-520 nm
	Green : 530-590 nm
	Red : 620-690 nm
Infr Red : 760-890 nm	
Swath width	17.5 km



Alsat-2B : 07 Aug 2018

Algerian Space Agency – Space system capabilities



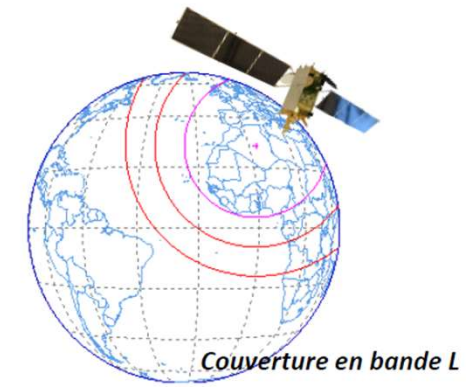
ALCOMSAT-1

Alcomsat-1 characteristics

- Orbital position : **24.8° West**
- Payloads : **33 transpondeurs**
- Platform : DFH-4
- Lifetime : **≥ 15 ans**
- Weight : 5200 Kg
- Launcher : LM-3B/E (from : Xichang, Chine)

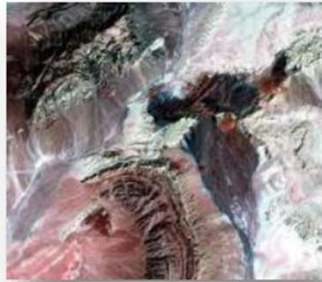


CEST BOUCHAOUI



Algerian Space Agency – Earth observation activities

Natural Resources



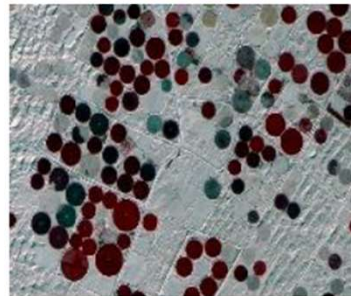
Geology



Energy



Fishery

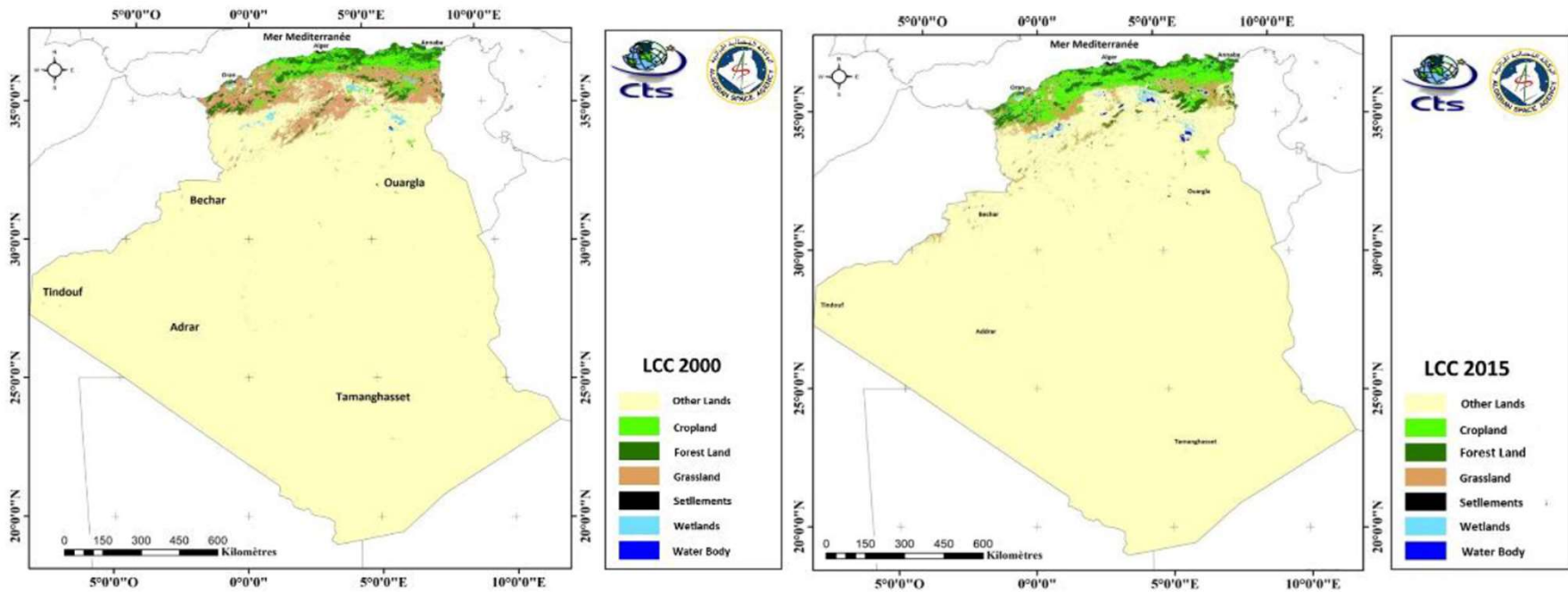


Agriculture



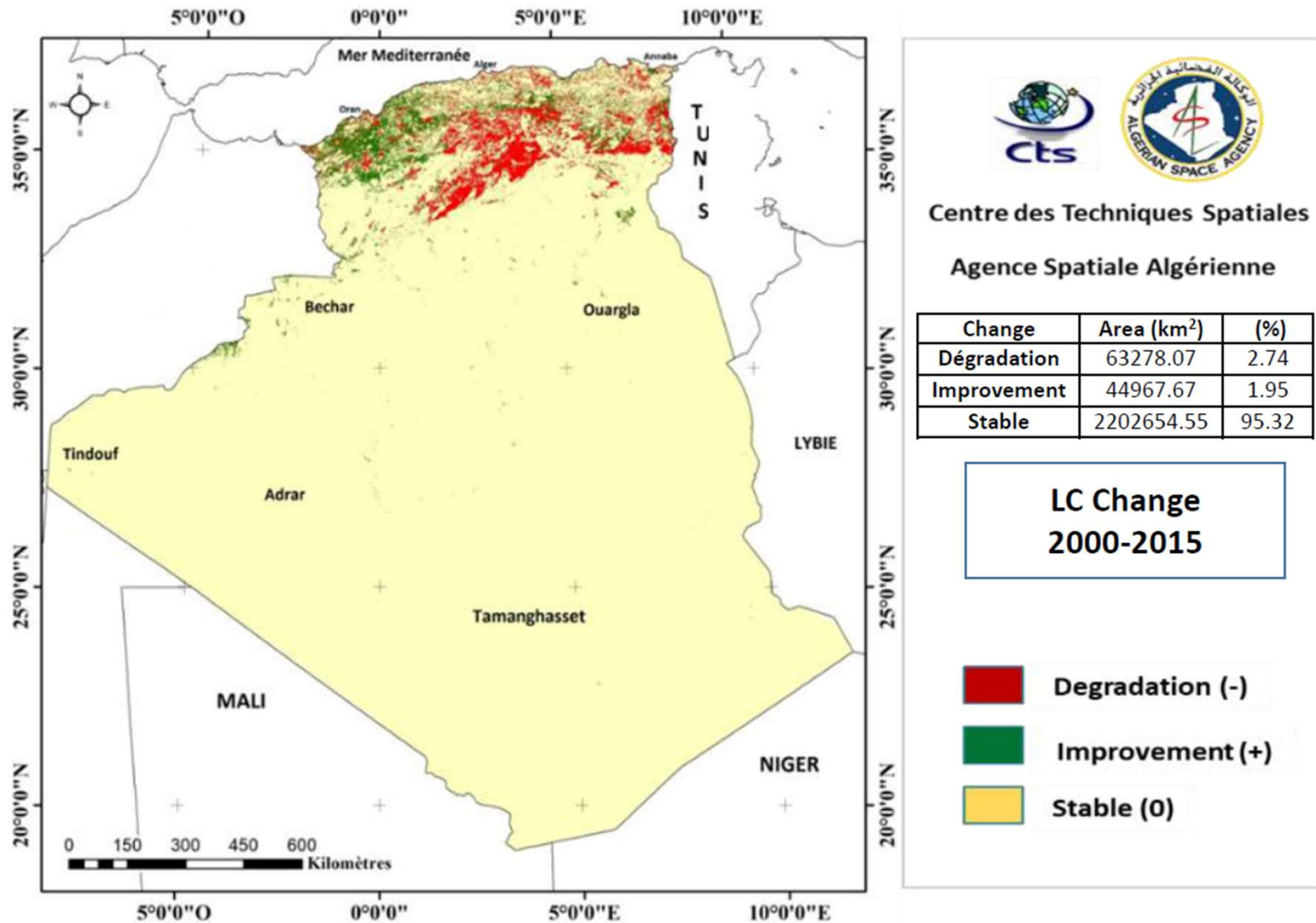
Water

Algerian Space Agency – Earth observation activities



Land cover change mapping

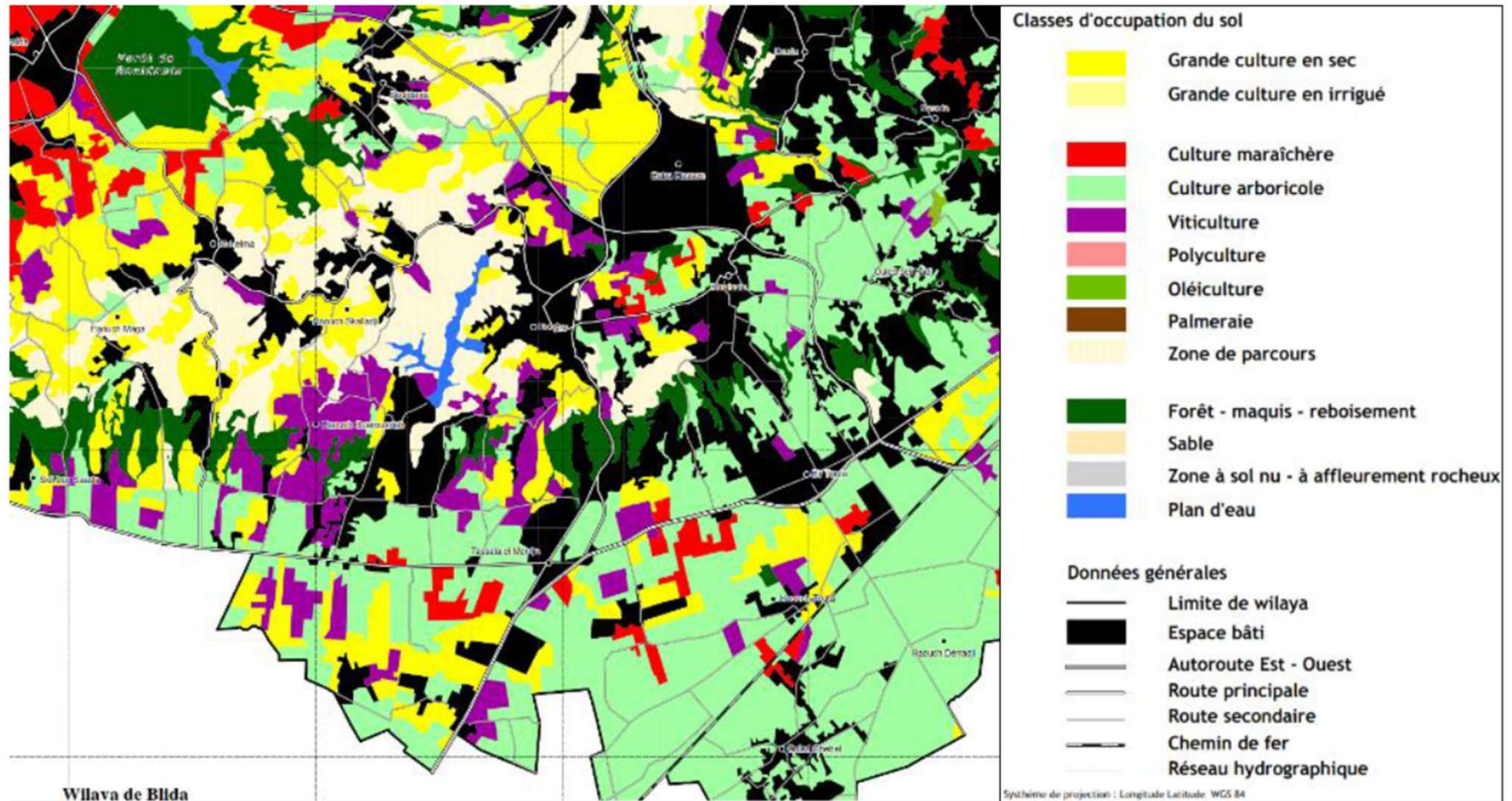
Algerian Space Agency – Earth observation activities



Land cover change mapping

Algerian Space Agency – Earth observation activities

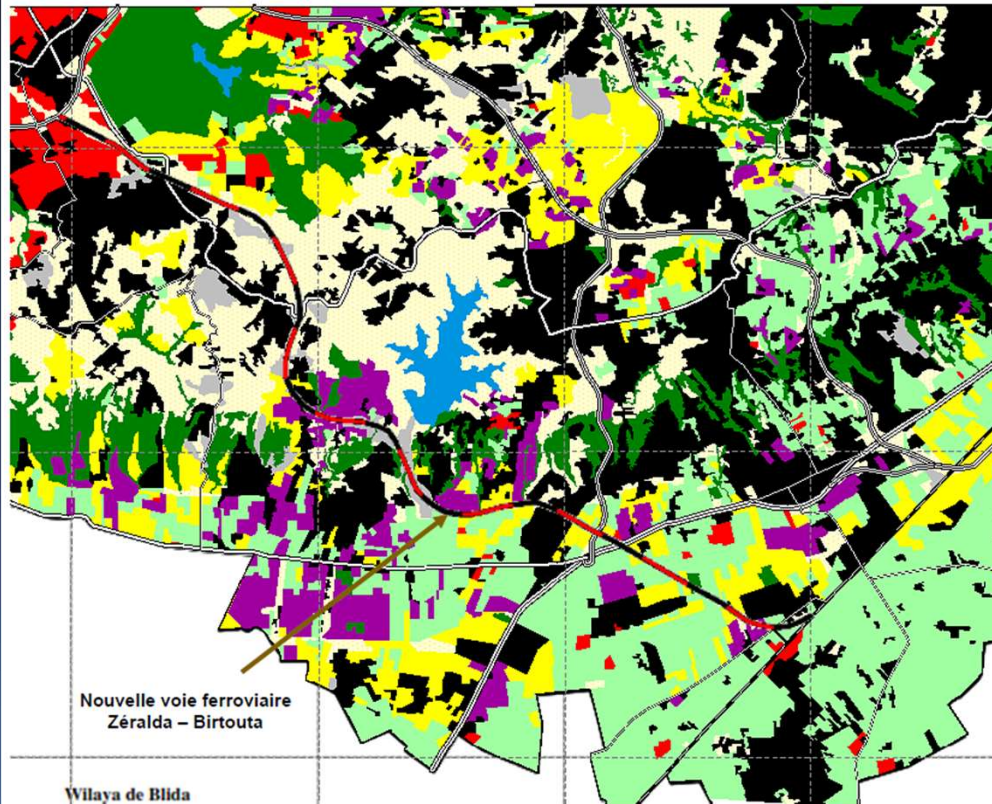
2011



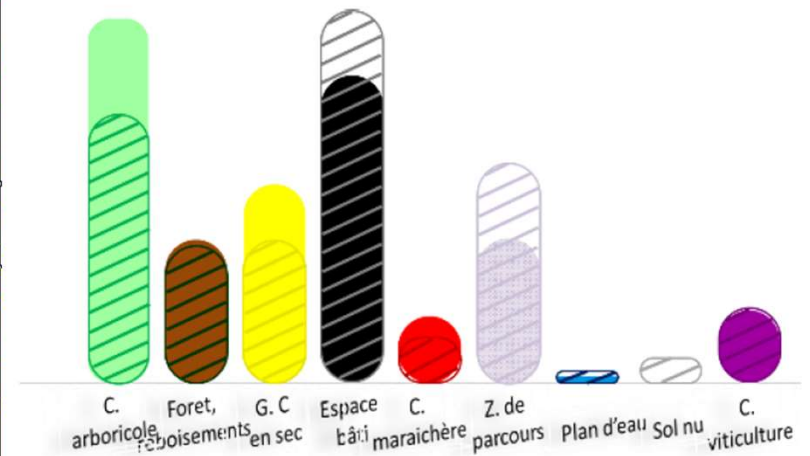
Land use change mapping

Algerian Space Agency – Earth observation activities

2017

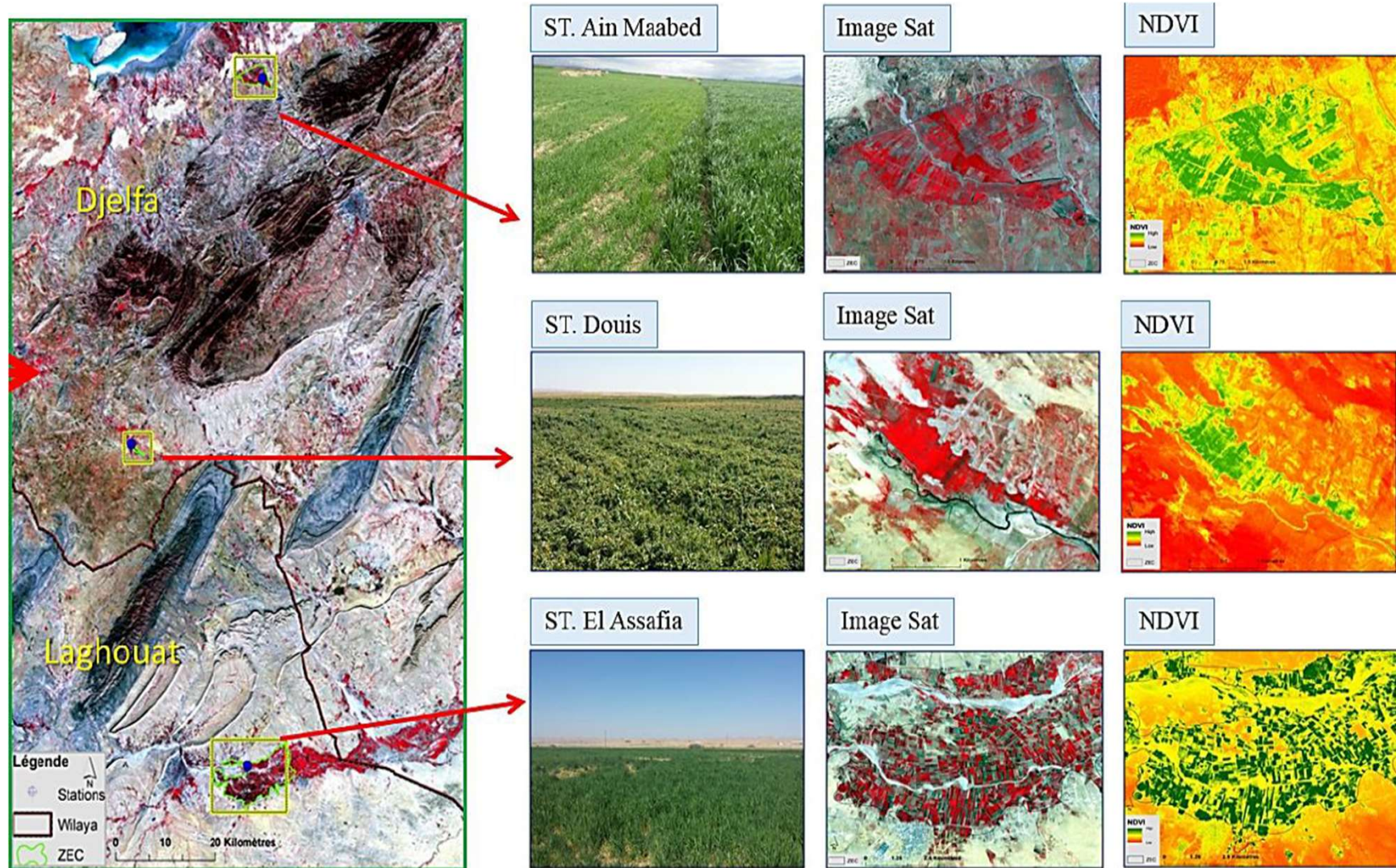


Land Use Change 2011-2017



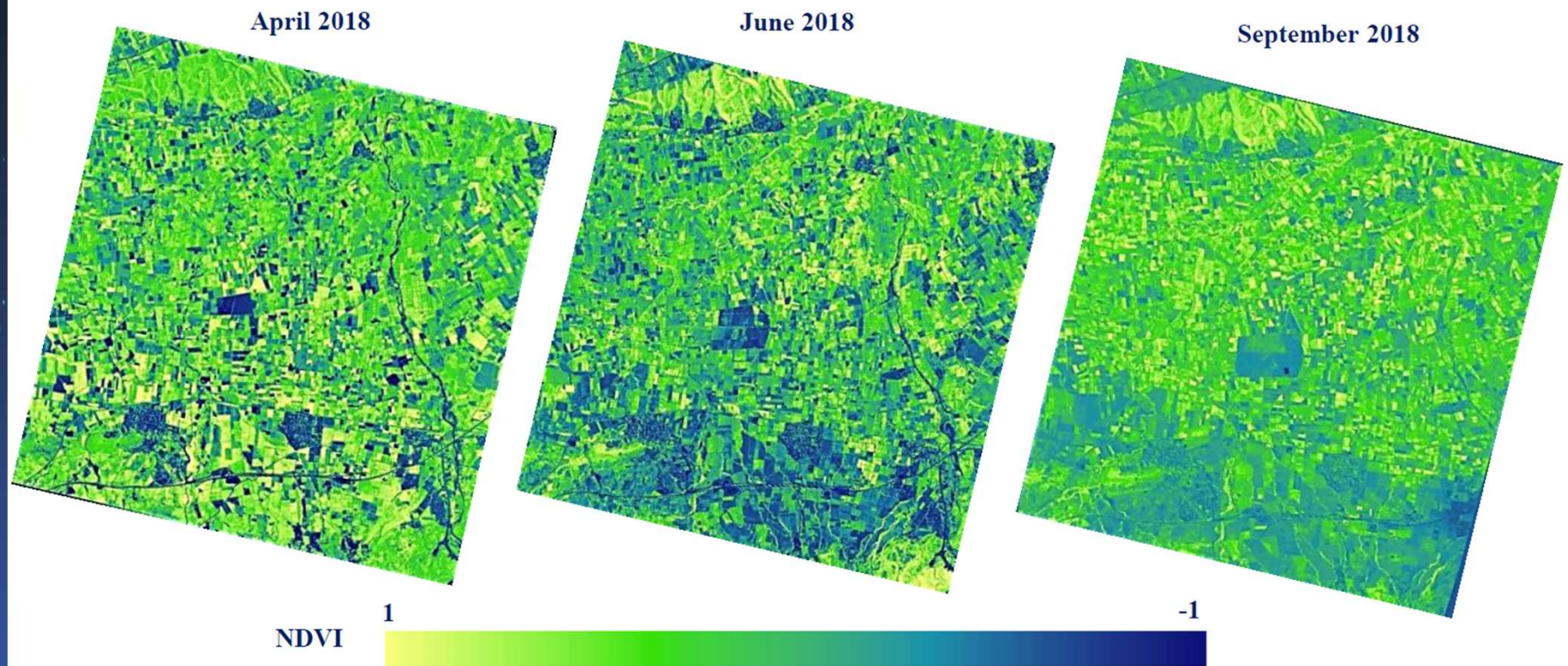
Land use change mapping

Algerian Space Agency – Earth observation activities



Crop monitoring

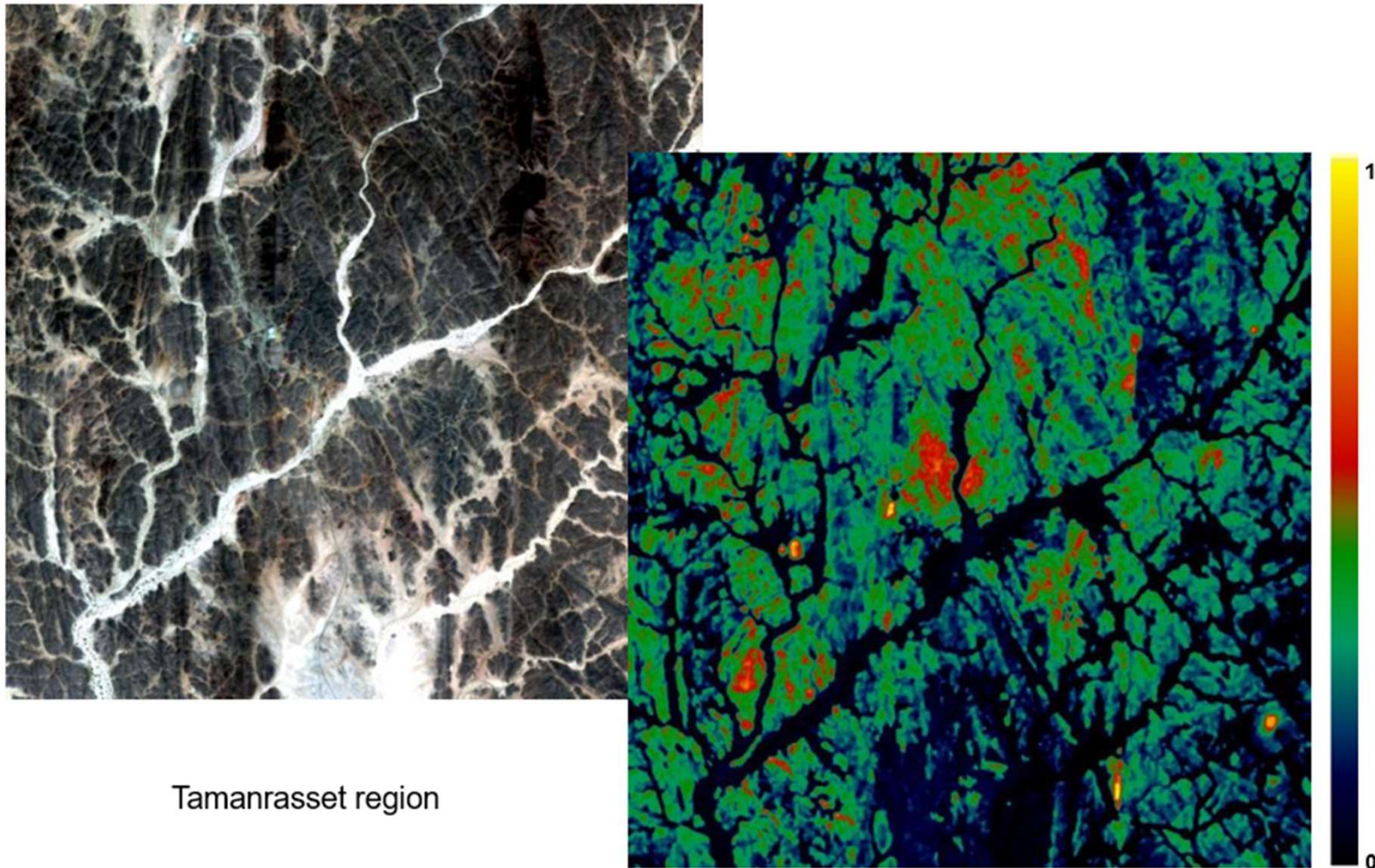
Algerian Space Agency – Earth observation activities



Irrigated areas monitoring

Algerian Space Agency – Earth observation activities

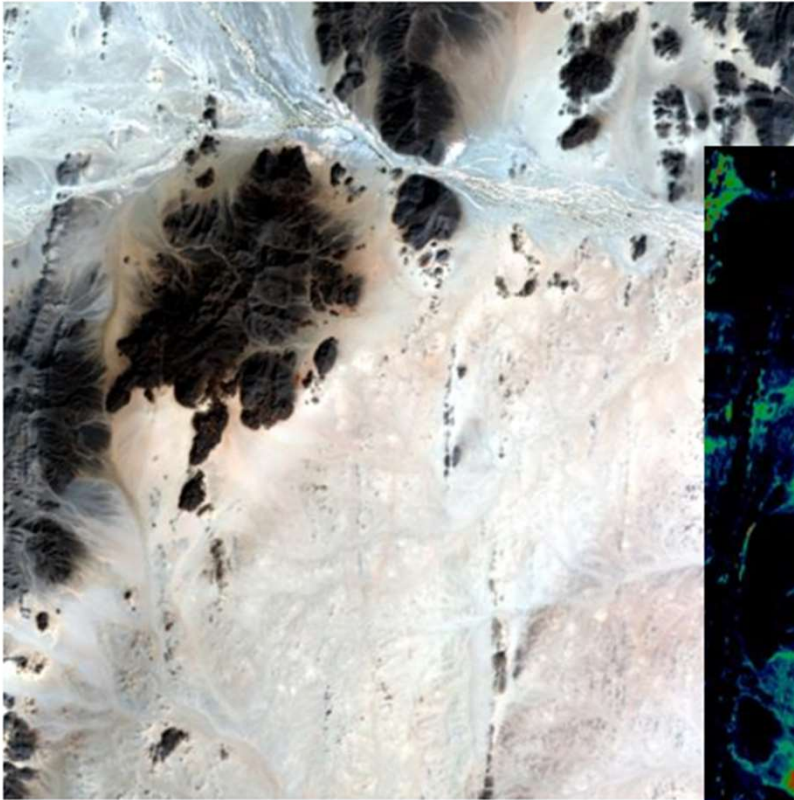
Greisen abundance map in relation with the presence of Tin and Tungsten



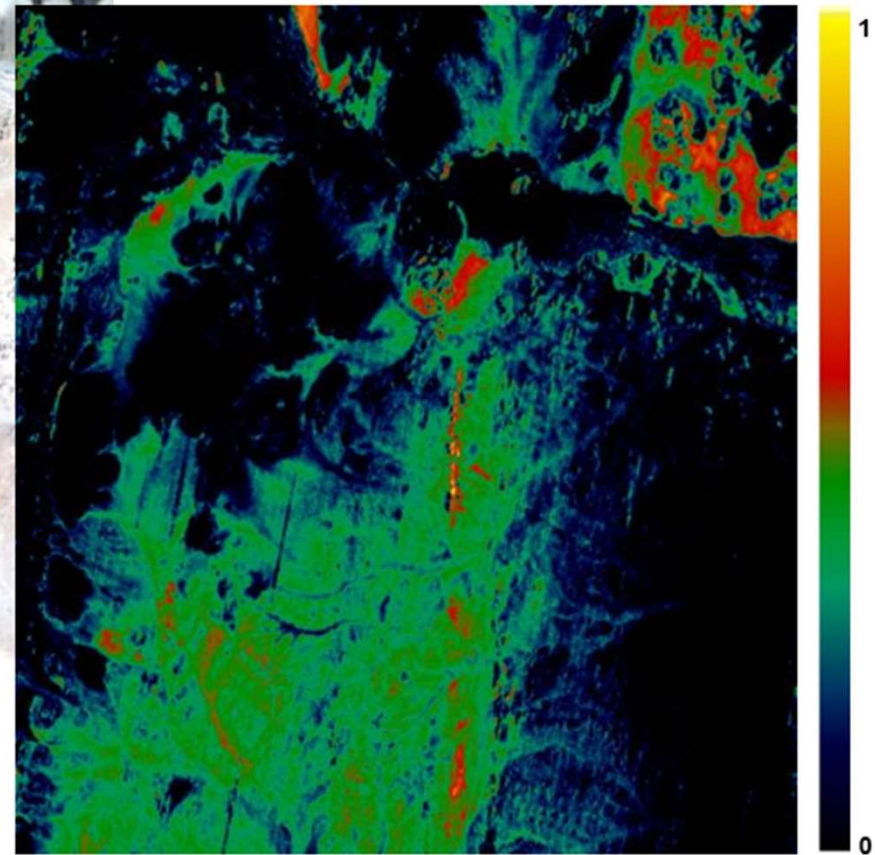
Mining prospecting

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Gold-bearing Quartz



In-Amguel region



Gold-bearing Quartz abundance map

Mining prospecting

Algerian Space Agency – Earth observation activities

Major risks & Geo-environment



Floods



Forest fires



Locust infestation



Desertification

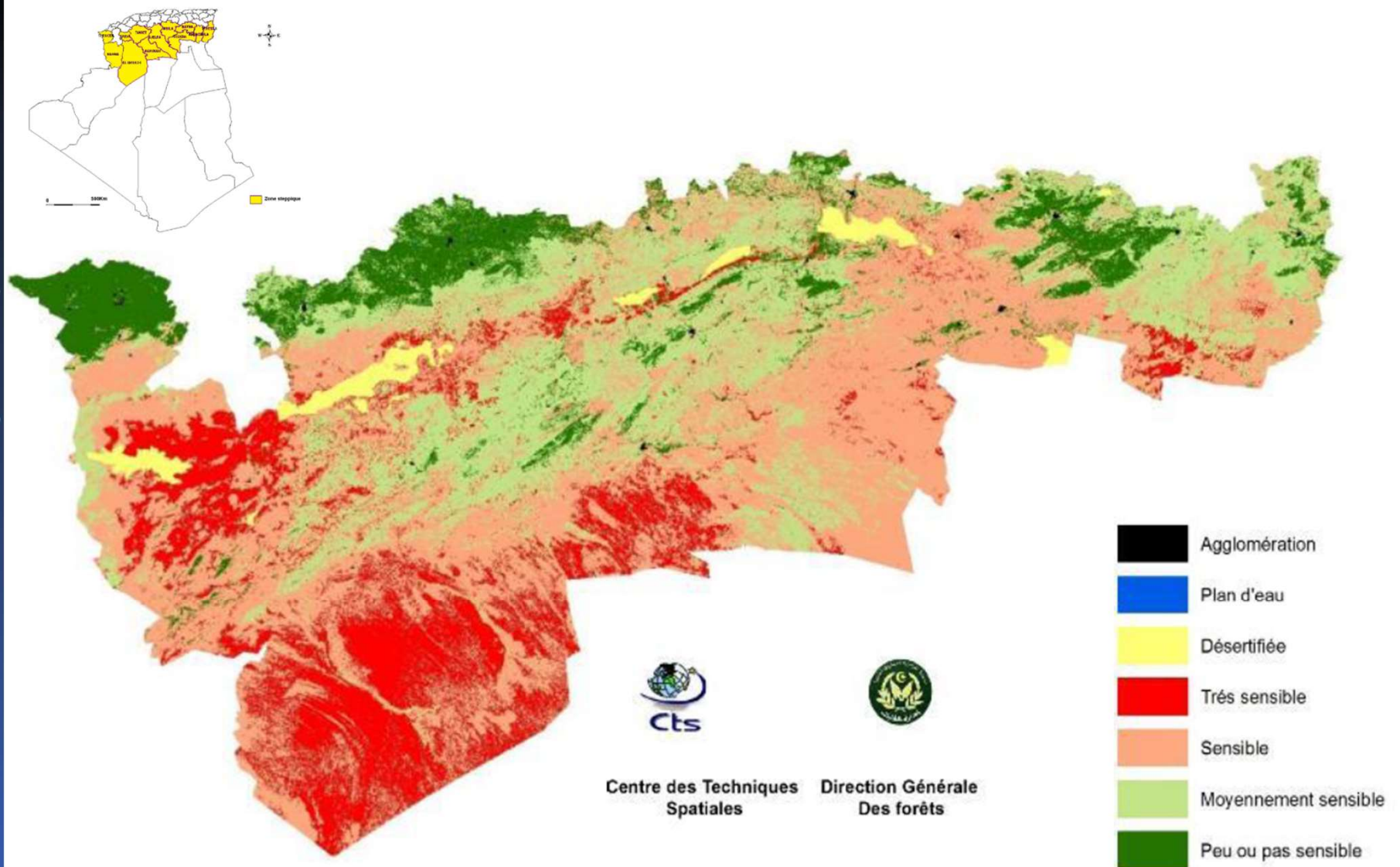


Earthquakes



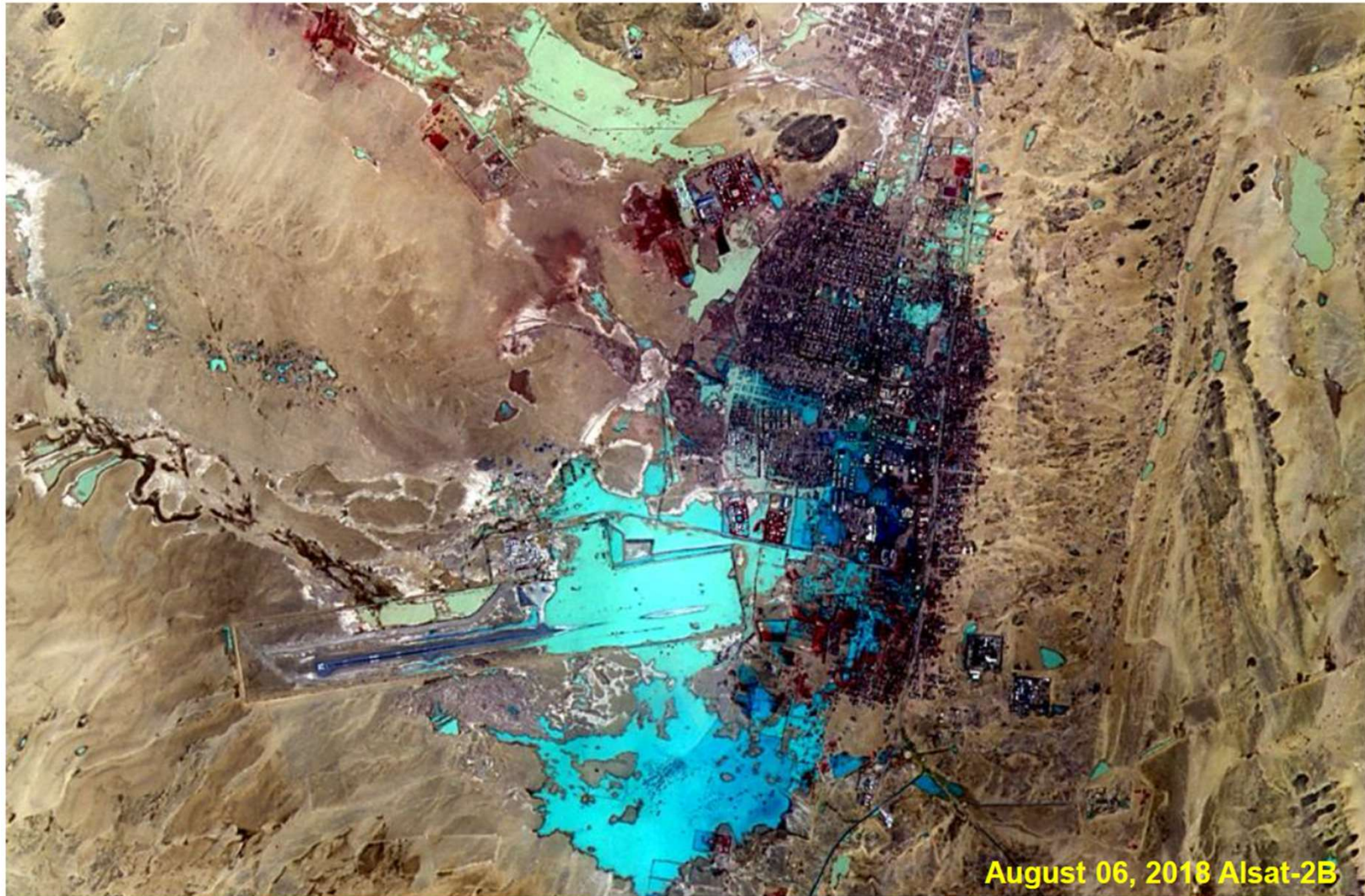
Pollution

Algerian Space Agency – Earth observation activities



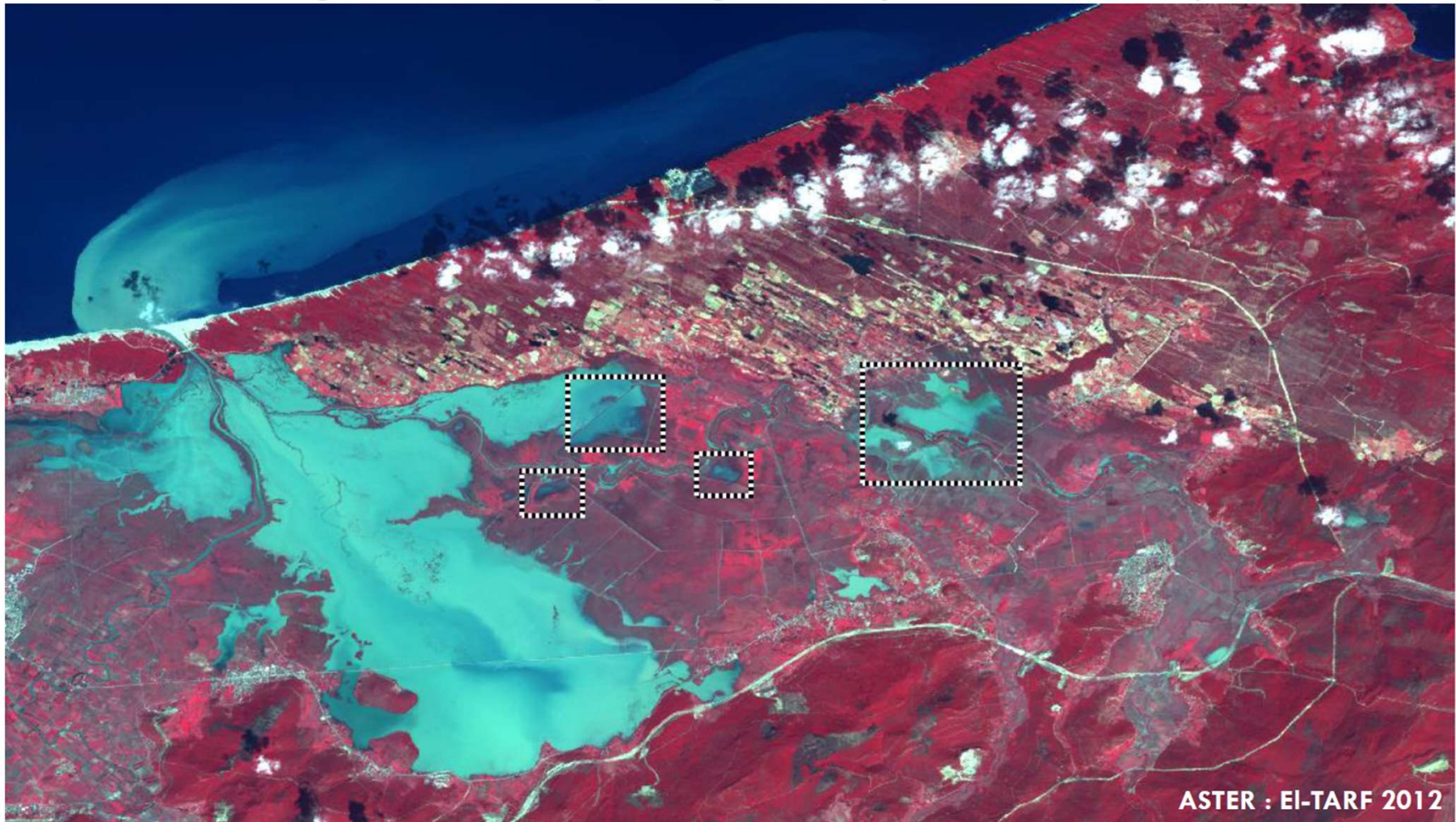
Desertification mapping

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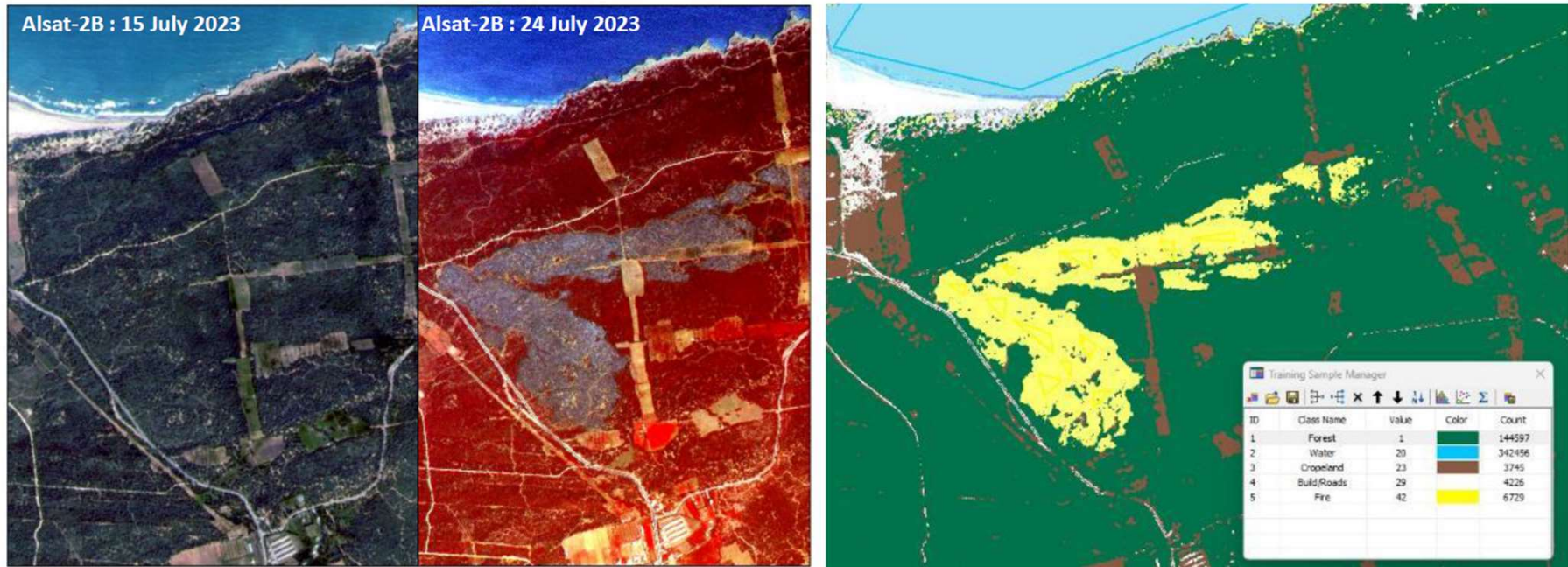
Flood emergency response

Algerian Space Agency – Earth observation activities



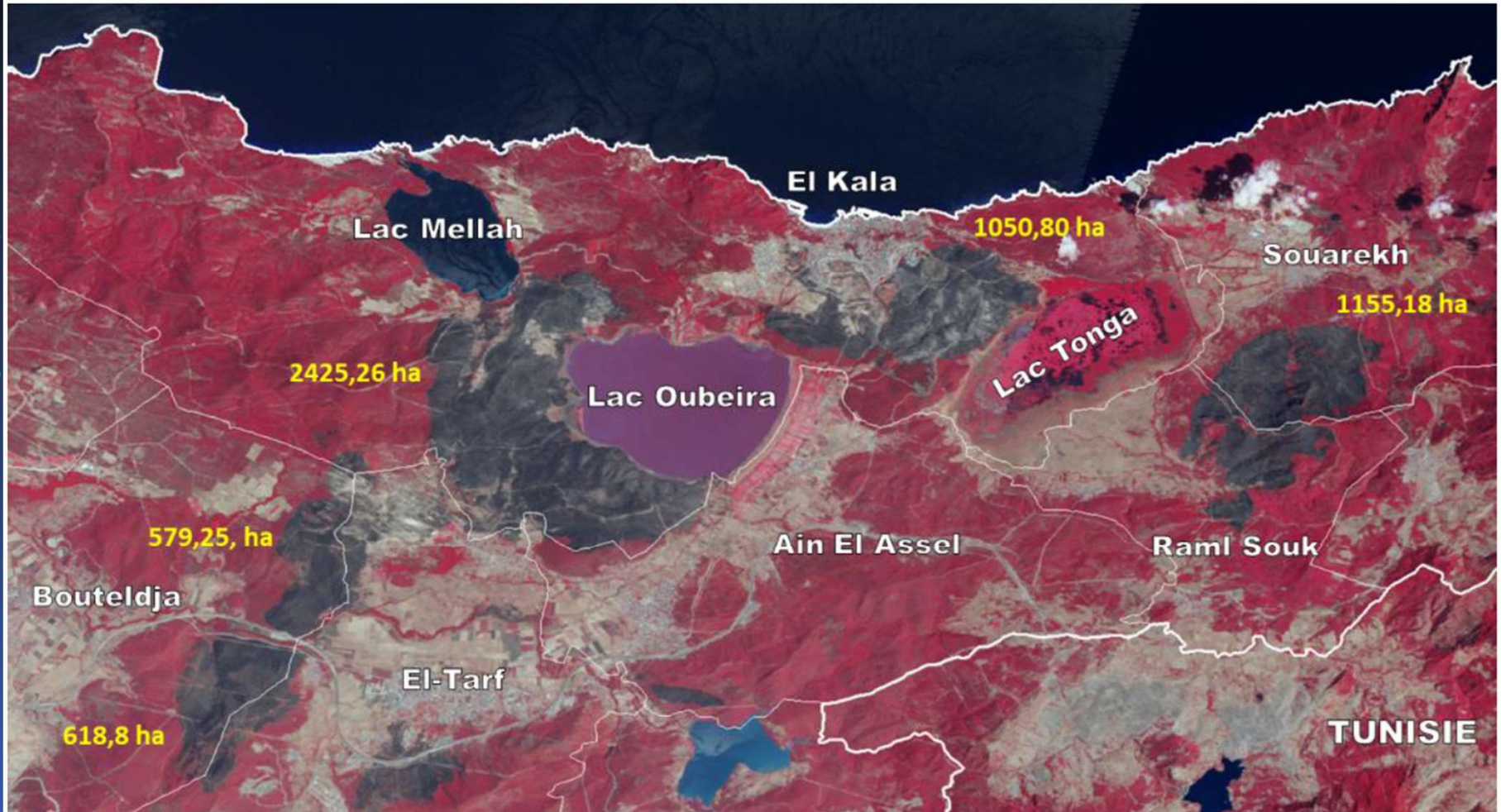
Flood emergency response

Algerian Space Agency – Earth observation activities



Forest fire monitoring

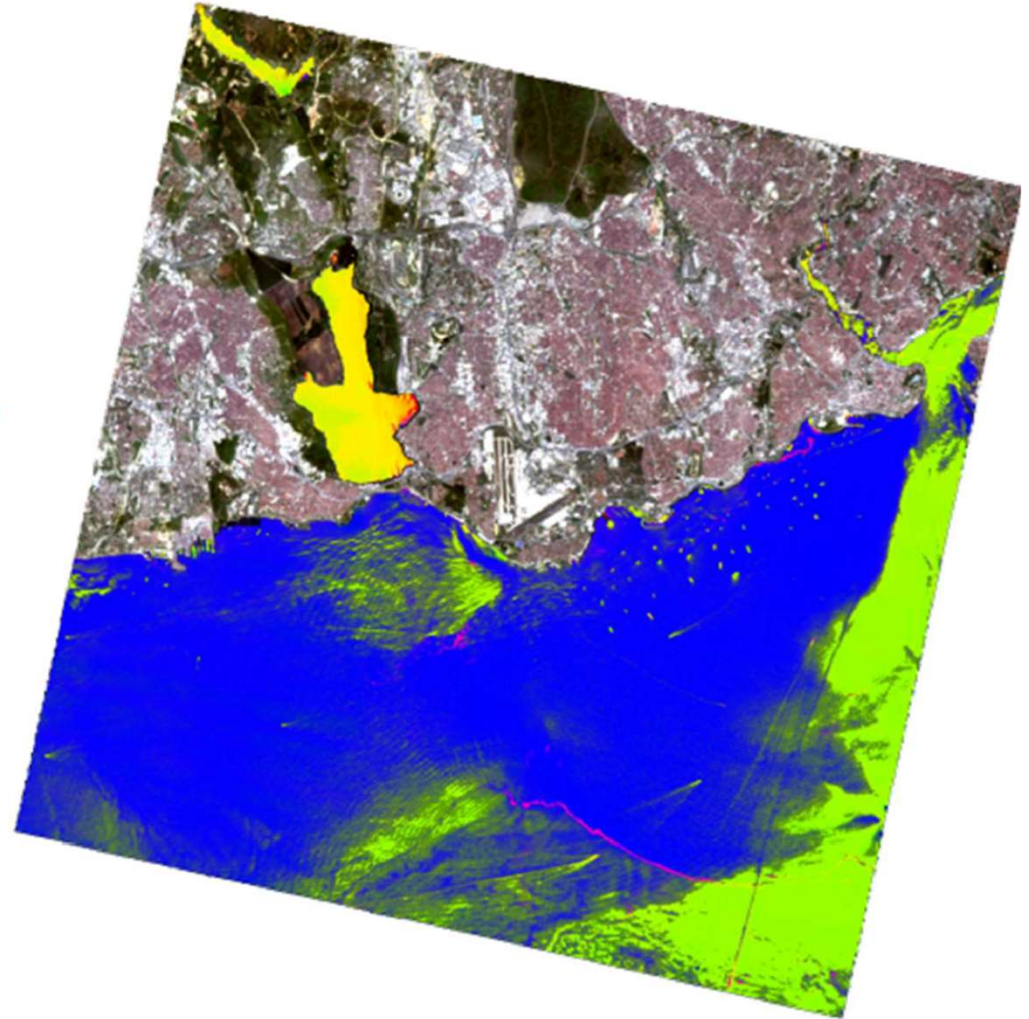
Algerian Space Agency – Earth observation activities



Forest fire monitoring

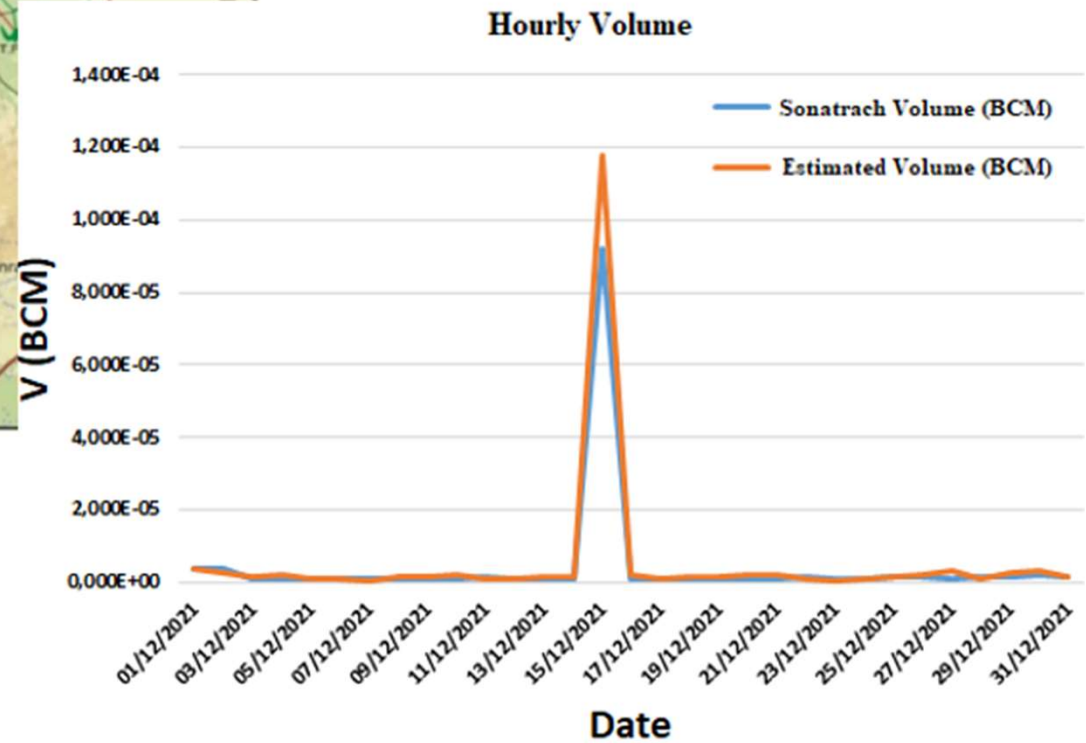
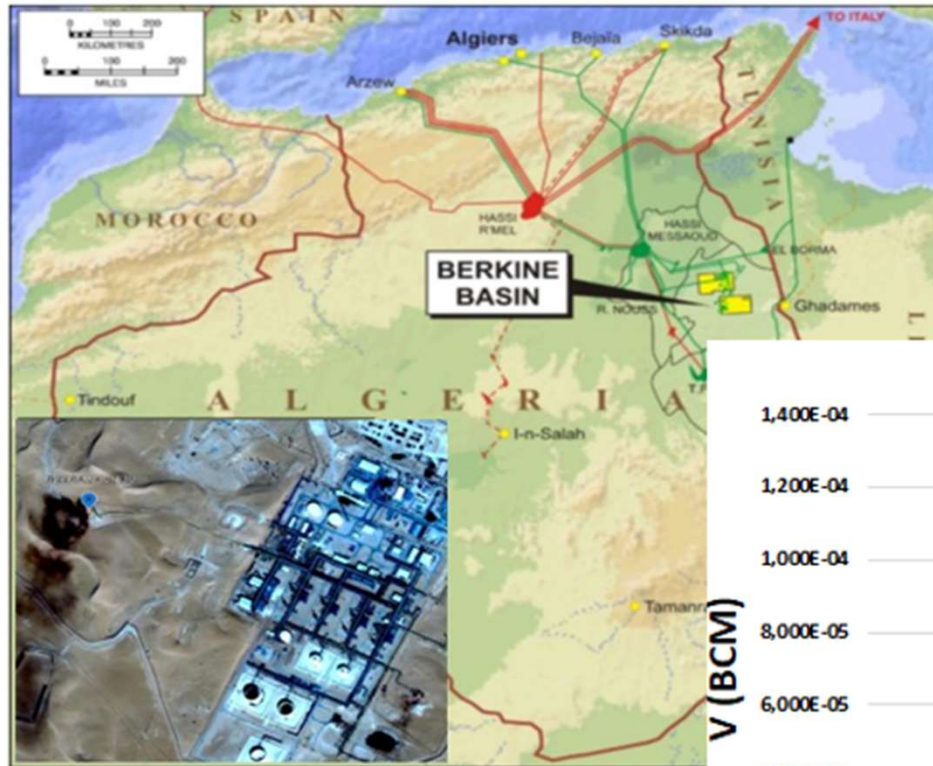
Algerian Space Agency – Earth observation activities

RGB (R: Accumulated Mucilage, G: Diffused Mucilage, B: Water) color composite of obtained abundance maps superimposed on the RGB color composite of the used PRISMA image



Marine pollution mapping

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Flared gas volume estimation

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February 2021

September 2022

Methane emissions estimation

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Infrastructure & Equipment



Equipment



Transportation



Land planning



Infrastructure



Industry

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O&G infrastructures change detection

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Urban planning mapping



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MANY THANKS...

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