

Iranian Space Research Center (ISRC)
Space Research Institute (SRI)

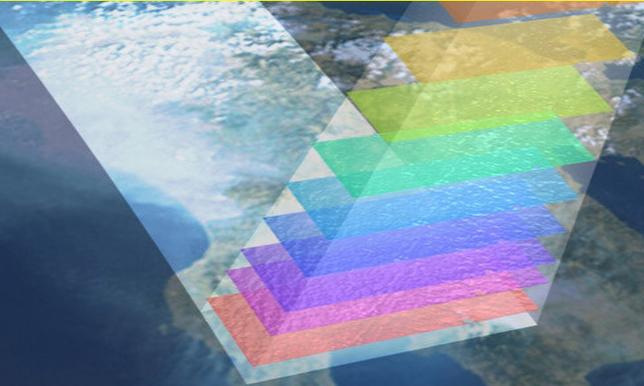


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- Educations

❑ Cooperation Models

- ❑ Some examples of international activities



پژوهشگاه فضایی ایران

مرکز تحقیقات فضایی

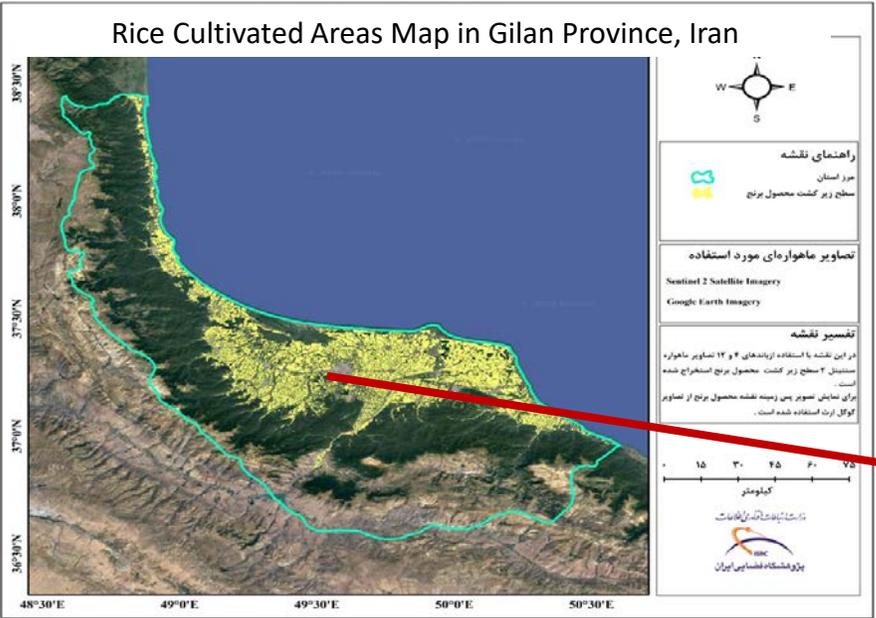




Food Security (Agriculture)



Rice Crop Mapping



- ✓ Crop surface monitoring and area estimation
- ✓ Discrimination of the agricultural crops
- ✓ Monitoring the quantitative parameters of agricultural plants
- ✓ Preparation of land use and land cover maps.

Rice Area Estimation



Measuring Crop Parameters



Estimating Biomass



Filling Questionnaires

Food security

Natural Hazards Management

Climate Change Monitoring

Insurance (Damage Assessment)

Satellite Web Service

Educations

Cooperation Models

Other Activities

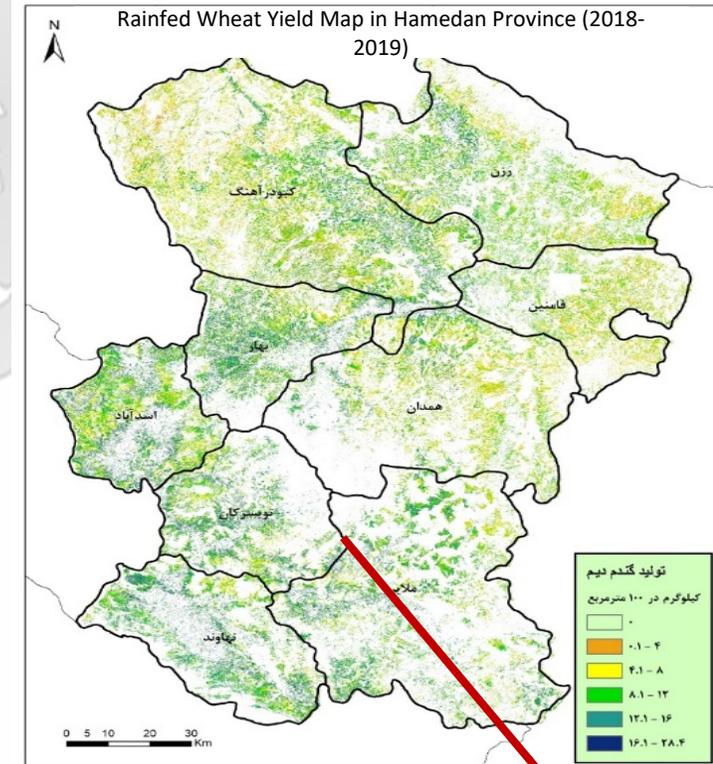
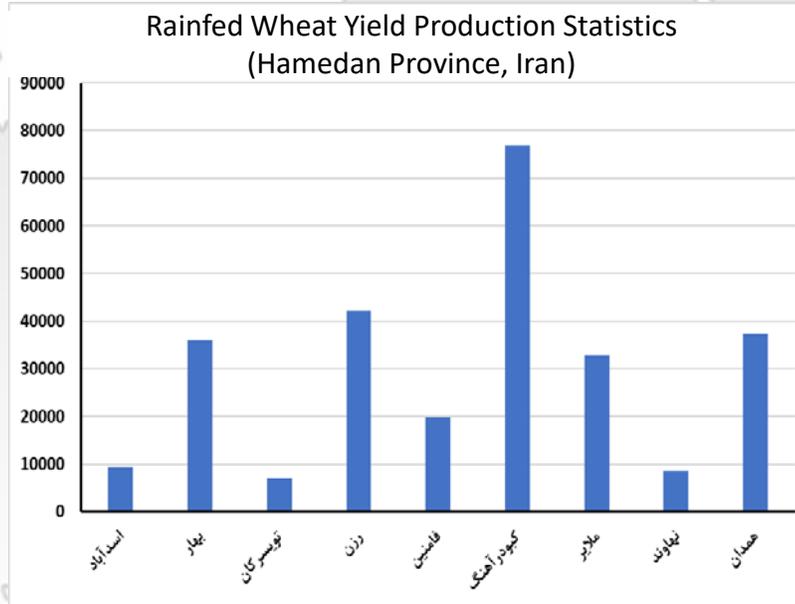
Food Security (Agriculture)

Wheat Yield Production Estimation



km²

- ✓ Crop yield production estimation
- ✓ Yield comparison in different years
- ✓ Crop patten management

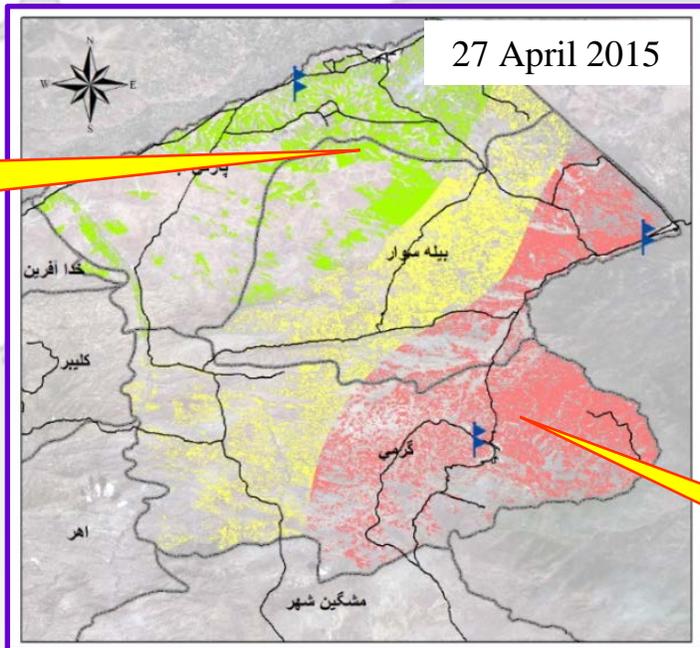


Wheat Yield Production Map

Food Security (Agriculture)



Wheat Fusarium disease prediction map

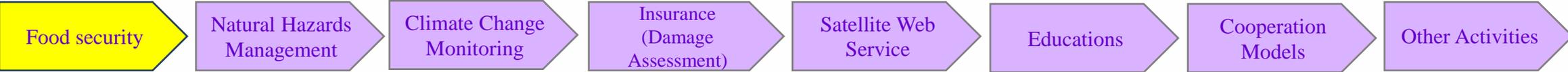


Low Probability

- Low Probability
- Average probability
- High Probability

High Probability

- ✓ Crop diseases identification
- ✓ Crop disease prediction map



Food Security (Agriculture)

Monitoring of Nicaragua Strategic Crops

Rice



Corn



Tobacco



Sugar Cane



Coffee Bean

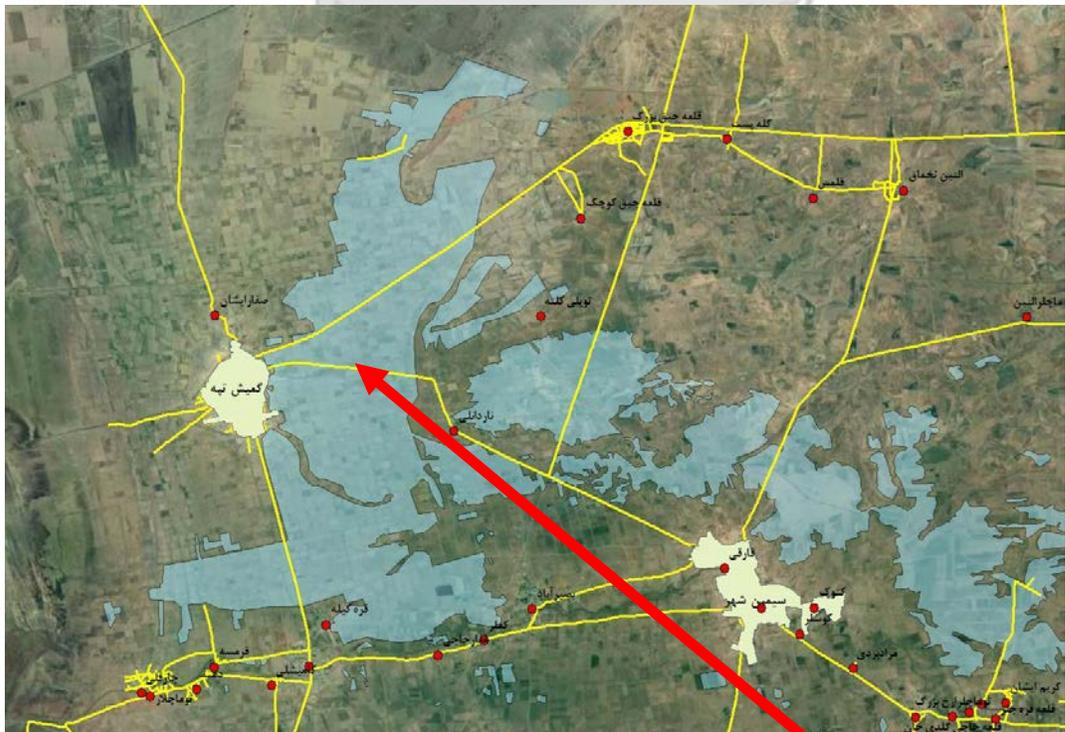


Banana



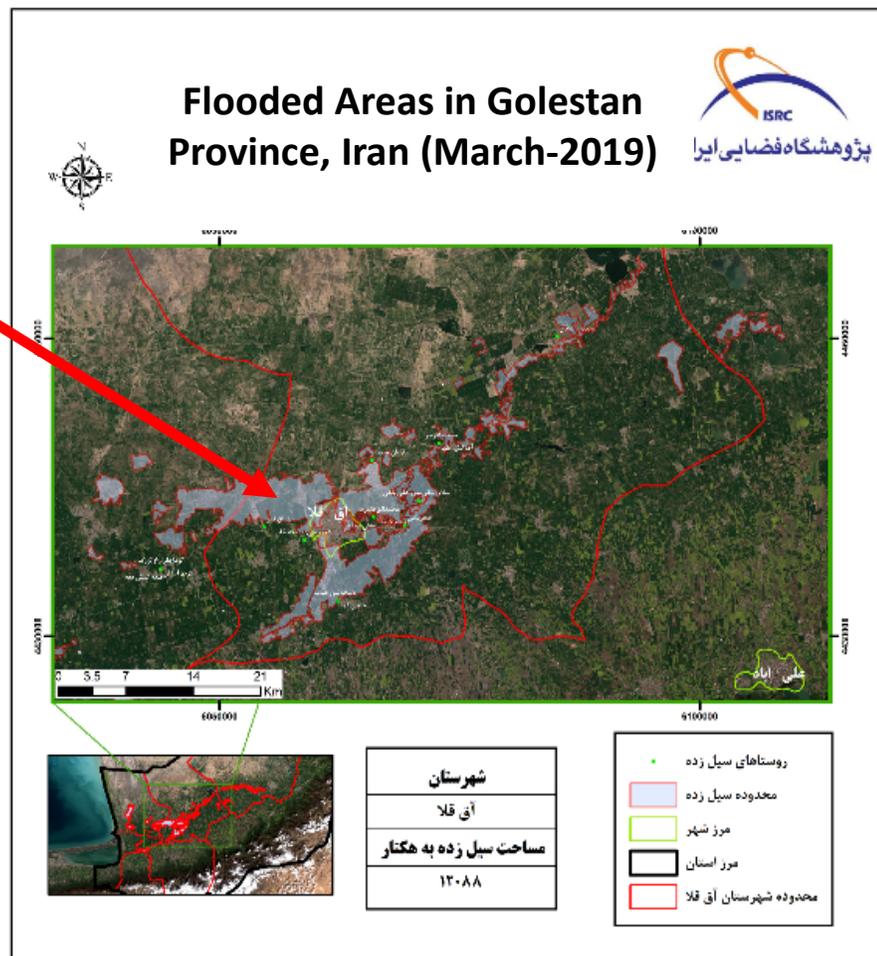
Natural Hazard Management

Flood



Map of flooded areas

Inundated Roads



Food security

Natural Hazards Management

Climate Change Monitoring

Insurance (Damage Assessment)

Satellite Web Service

Educations

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Other Activities



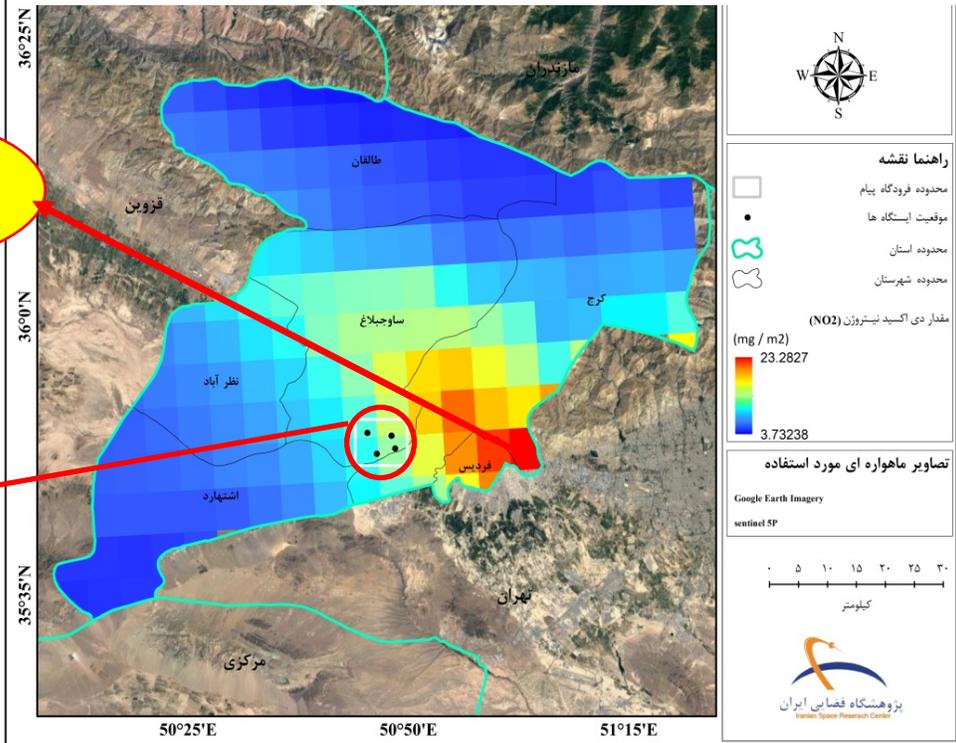
Natural Hazard Management

Monitoring of Atmospheric Pollutants for Urban Management

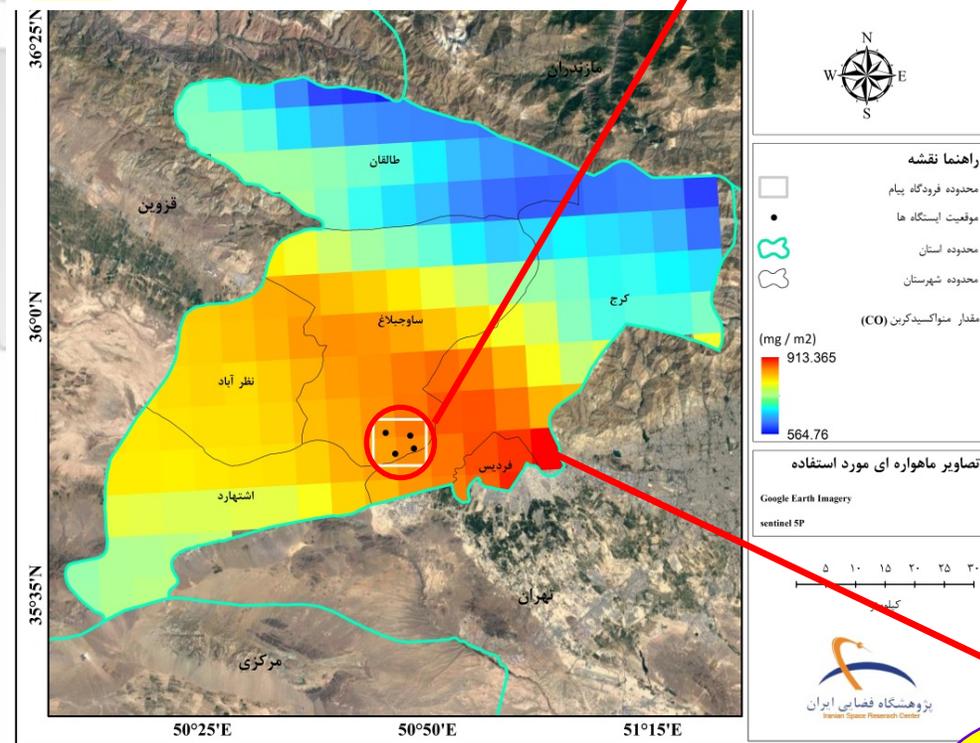


Airport

NO₂ in Alborz, IRAN (Spring 2021)



CO in Alborz, IRAN (Spring 2021)



The Center of Pollution

Airport

The Center of Pollution

Food security

Natural Hazards Management

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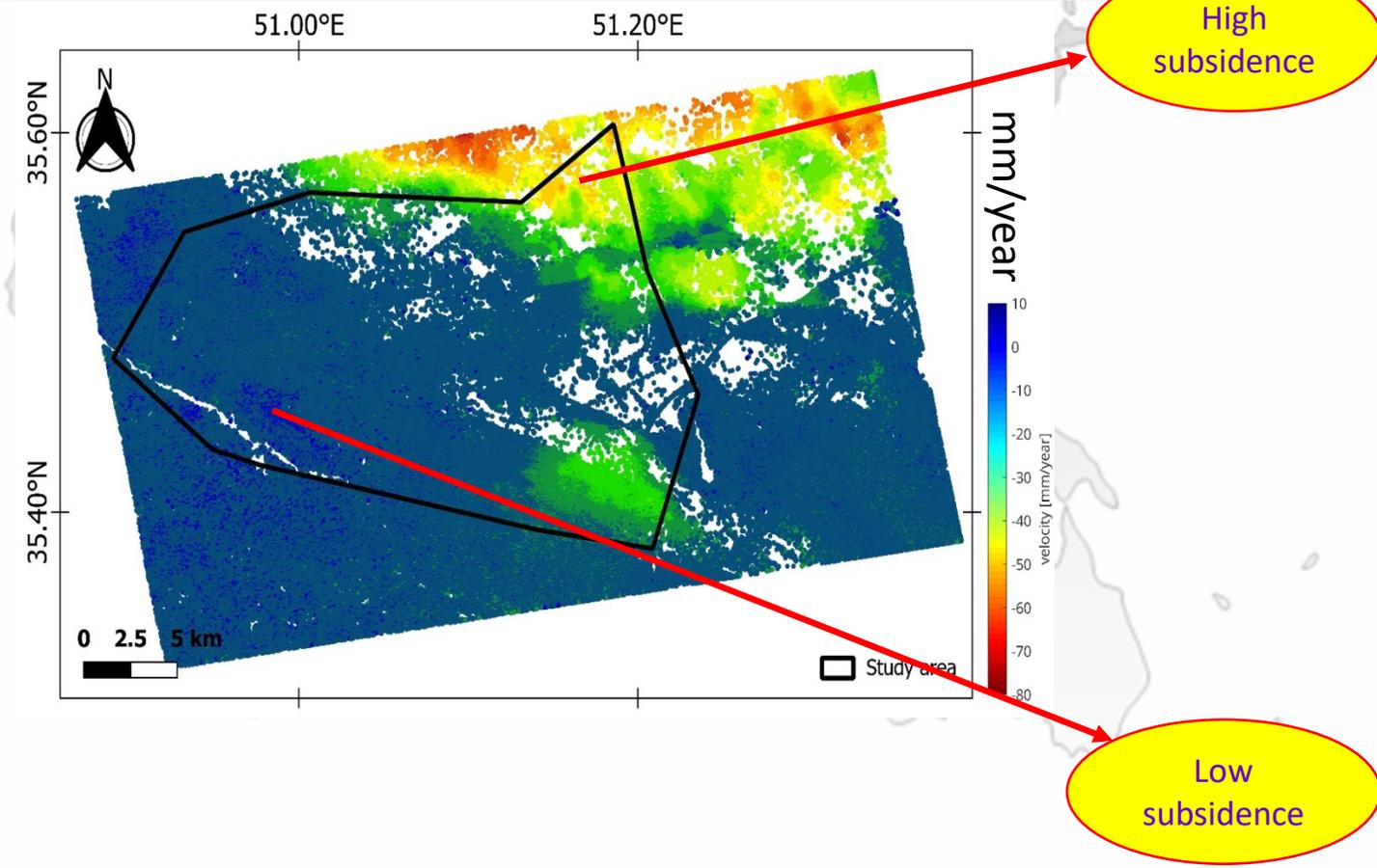
Natural Hazard Management

Monitoring of Land Subsidence for Smart Urban Management



Land subsidence, Tehran Province, from 2019 January to February 2022

Study Area



High subsidence

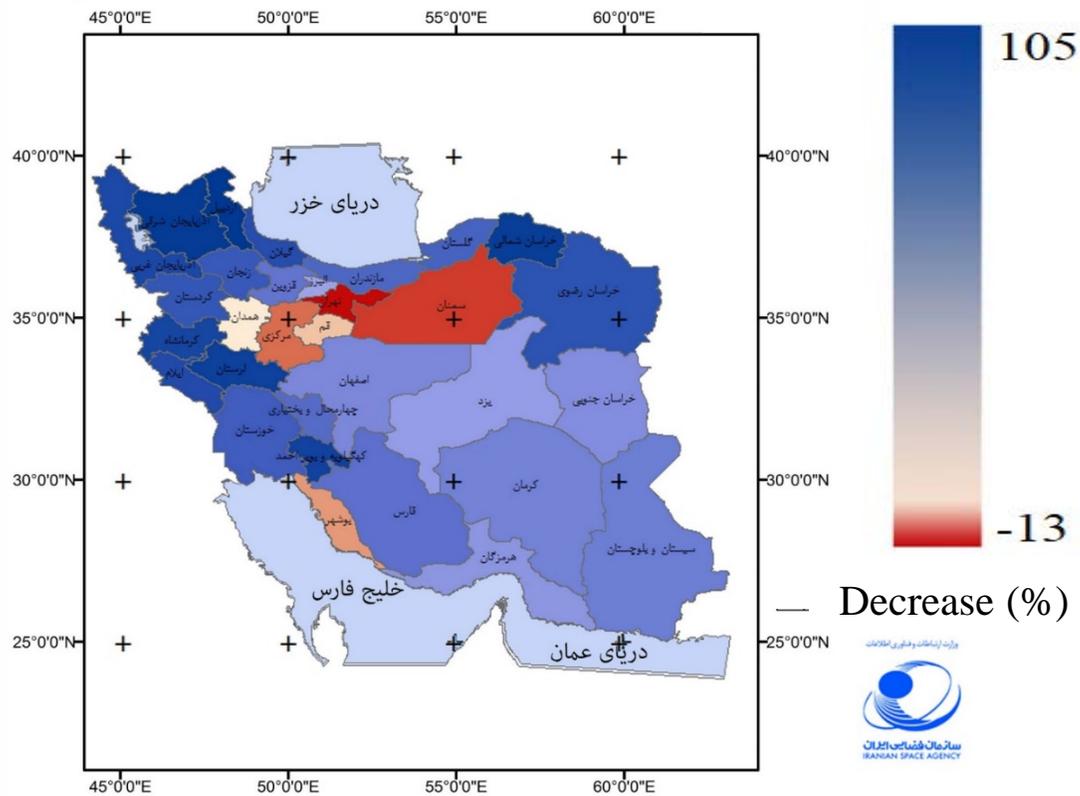
Low subsidence



Climate Change Monitoring

2021 % 2022

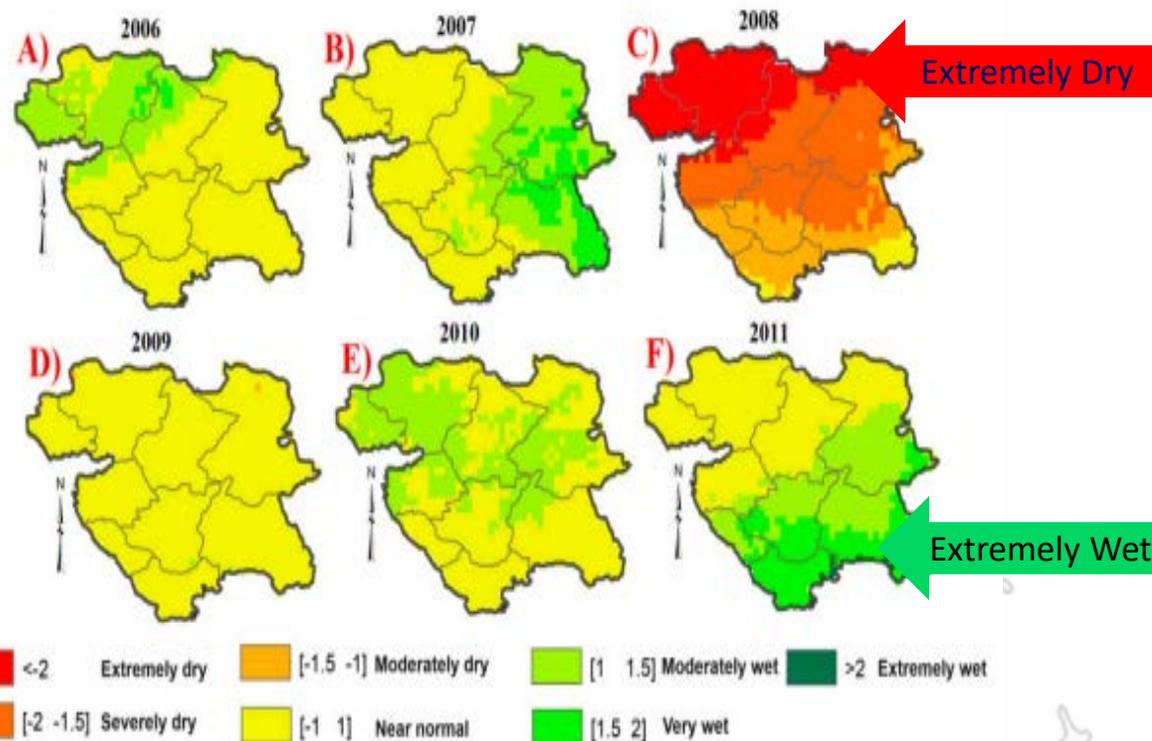
Soil Moisture Changes, Iran for Drought Monitoring



2006

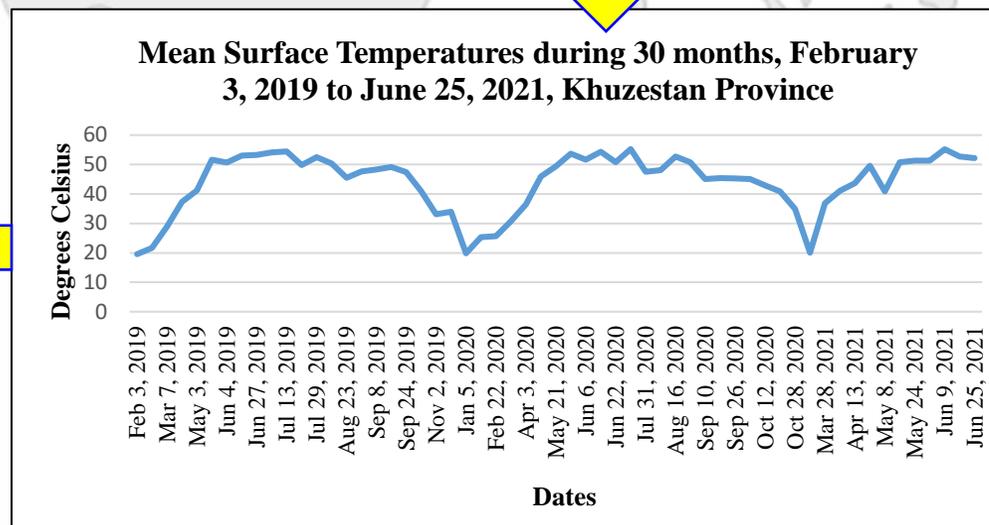
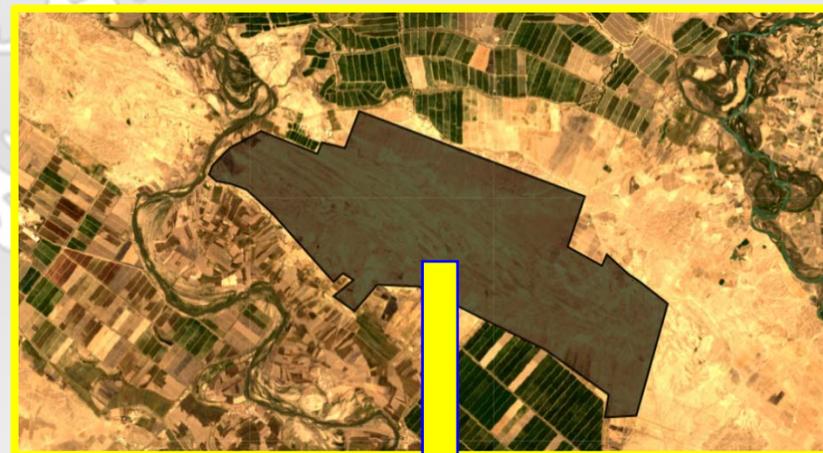
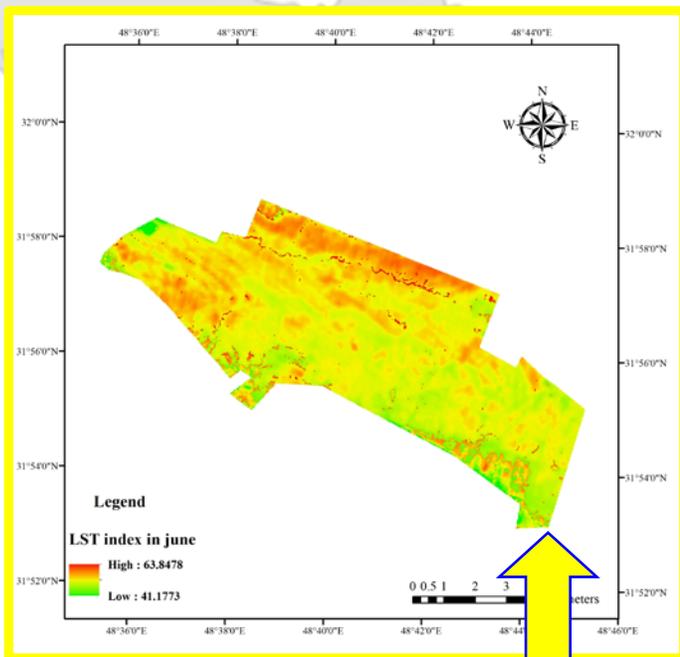
2011

Greenness Changes, Kurdistan Province, Iran for Drought Monitoring



Climate Change Monitoring

Highest mean surface temperature, Khuzestan, Iran



- ✓ Agriculture land use suitability analysis
- ✓ Crop pattern prediction



Climate Change Monitoring

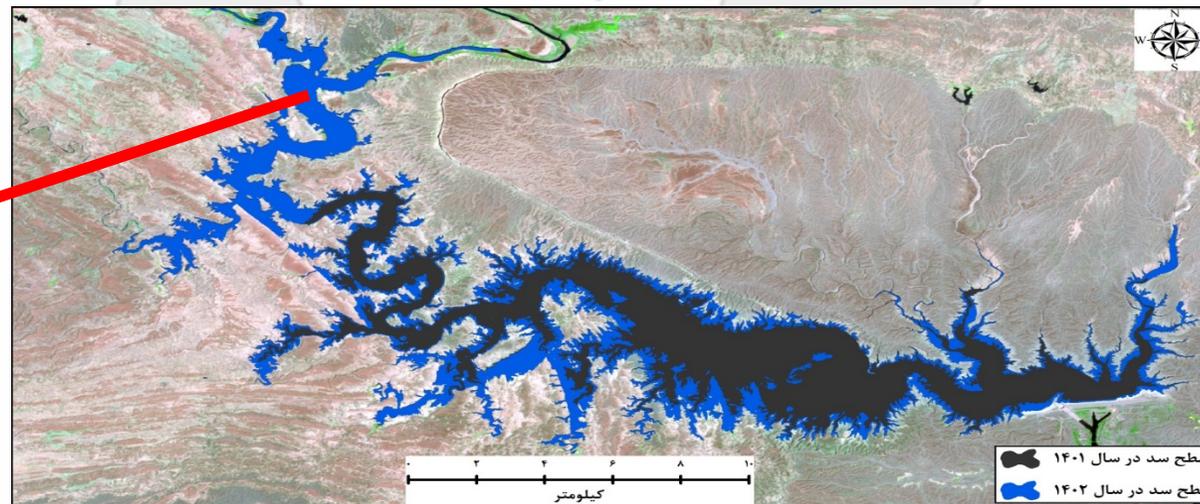
Surface area dam detection to estimate the water storage for urban use



Karkheh Dam (Iran) June 15, 2021



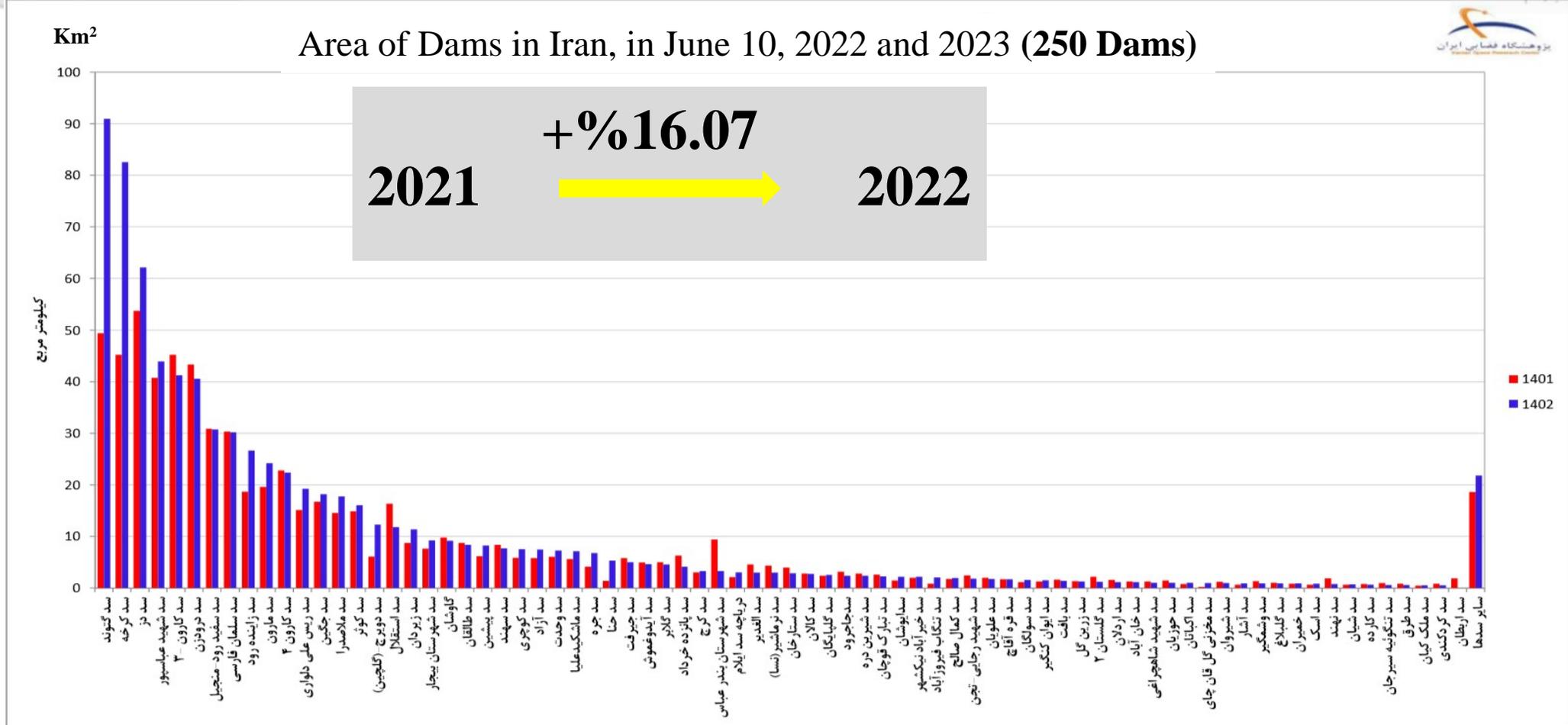
Karkheh Dam (Iran) June 15, 2022



The Difference:
+82.62 %



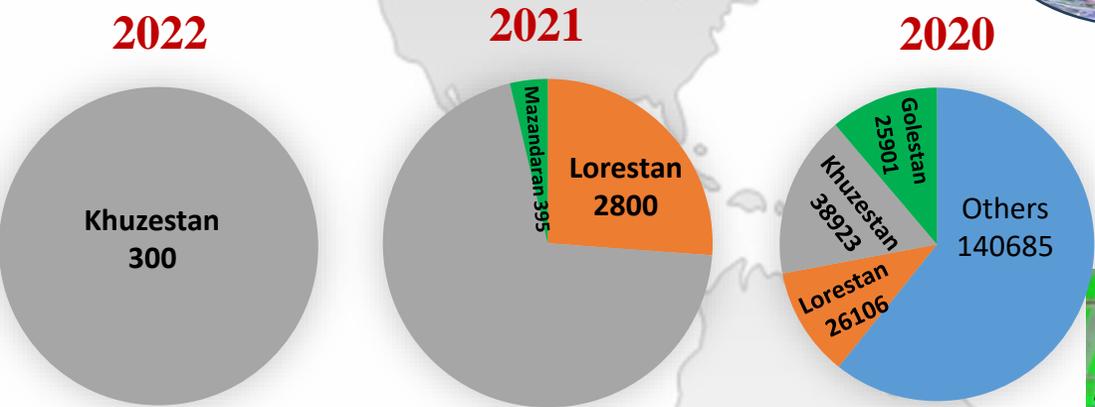
Climate Change Monitoring



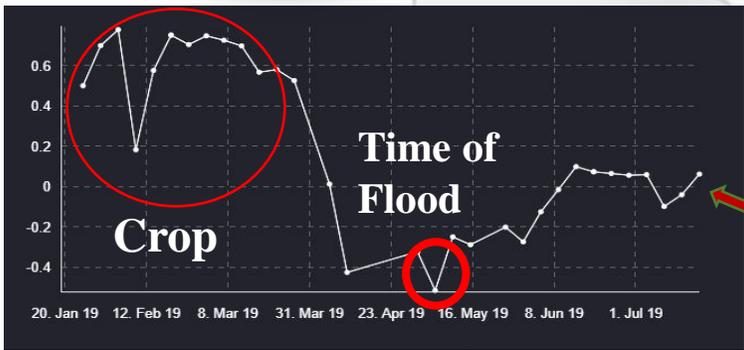


Insurance (Flood Damage Assessment)

Over 200 Thousand Damage Claim Files



Estimating Flood Damage to Agricultural Fields



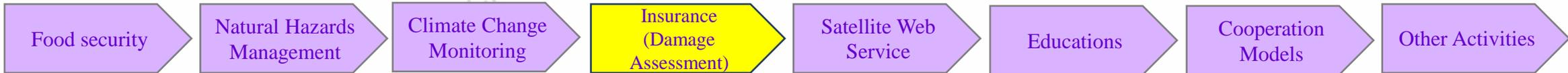
Wheat Cultivated in the Farm



Validating Damage

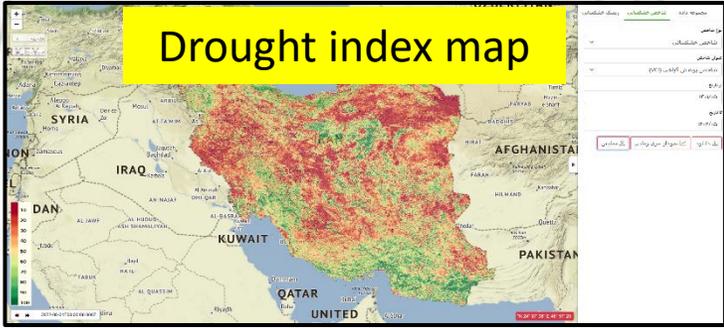
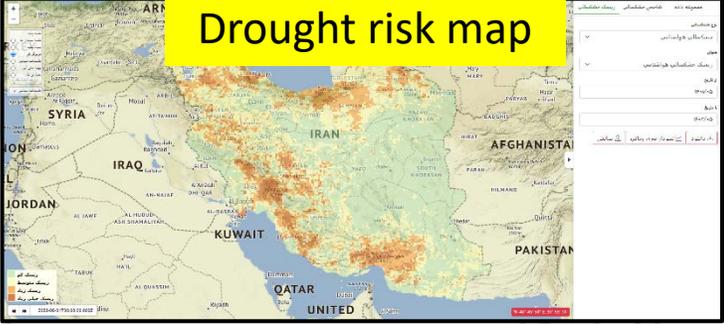
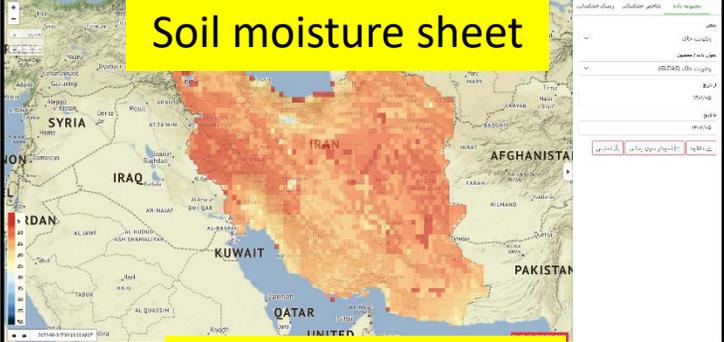
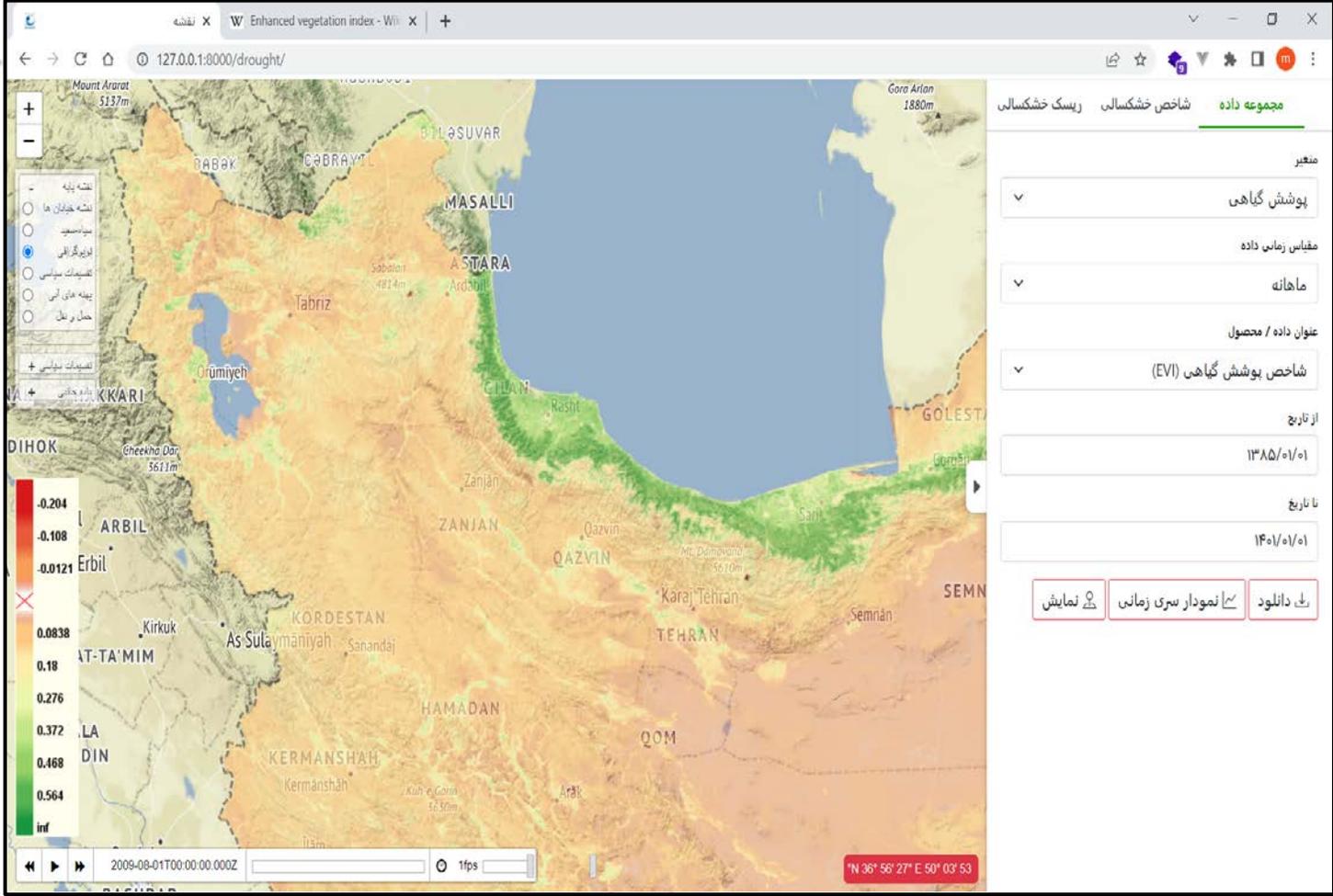


No Crop Cultivated



Satellite Monitoring Web Service

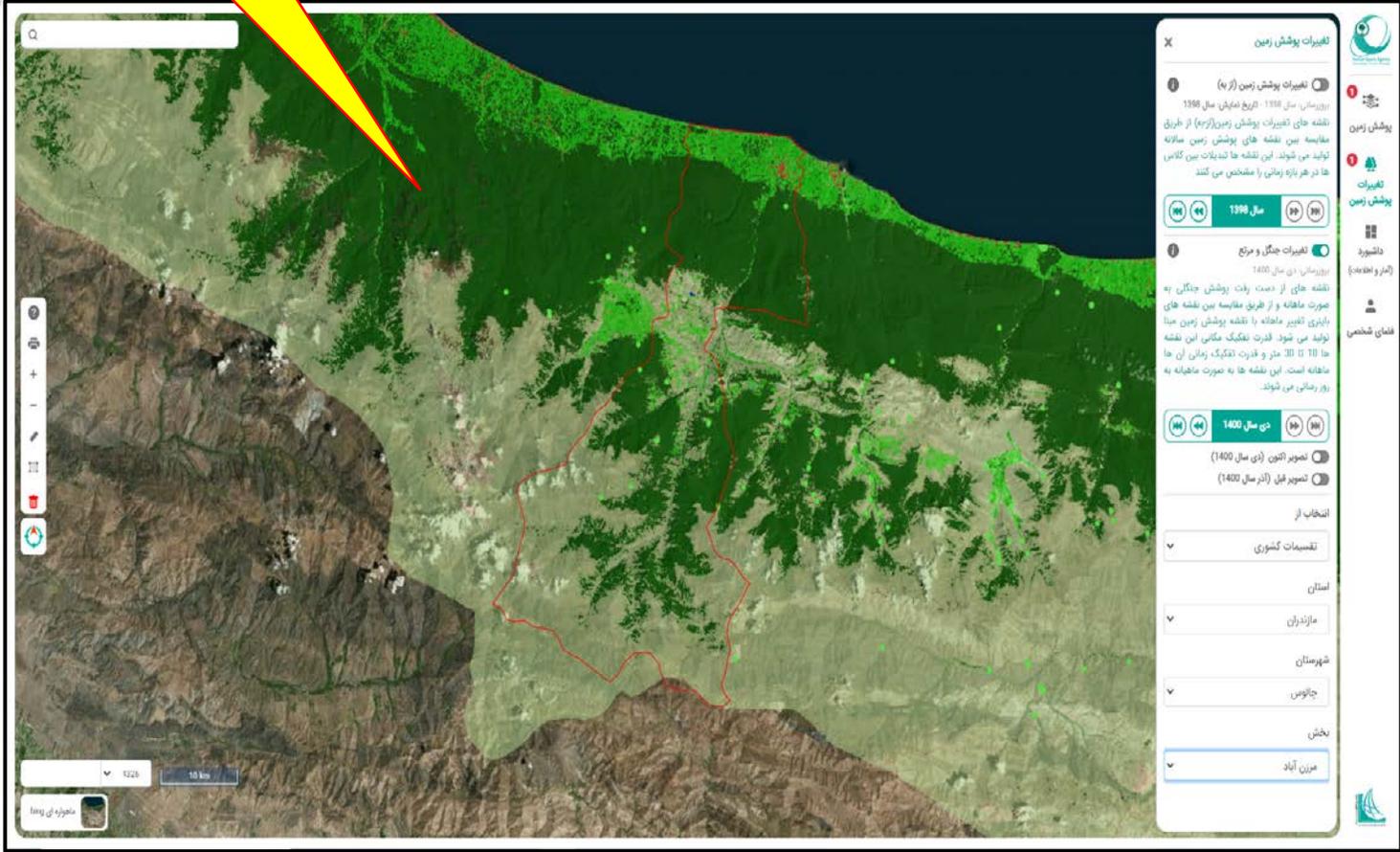
Drought Monitoring System



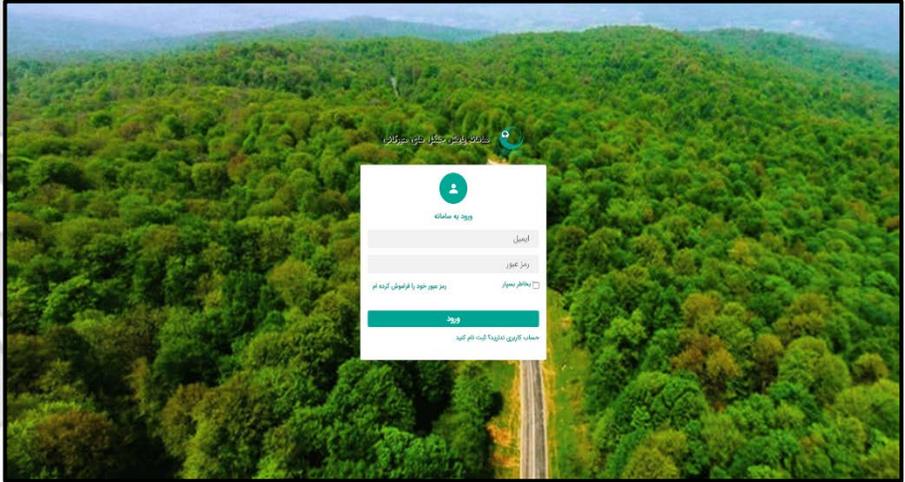
Satellite Monitoring Web Service

Forest areas

Forest Monitoring System



The screenshot shows a web-based satellite monitoring interface. On the left is a satellite map of a forested region. On the right is a sidebar menu with options like 'پوشش زمین' (Land Cover), 'تغییرات' (Changes), 'داشبورد' (Dashboard), and 'فشار شخصی' (Personal Pressure). A text panel on the right contains Persian text about land cover changes from 1398 to 1400, including a table with columns for 'تغییرات جنگل و مربع' (Forest and square changes) and 'تغییرات کف زمین (در سال 1400)' (Ground level changes (2021)).



A second screenshot of the web interface, showing a similar satellite map and sidebar menu. The sidebar menu options are slightly different from the first screenshot, including 'پوشش زمین', 'تغییرات', 'داشبورد', and 'فشار شخصی'. The text panel on the right is also present.

Satellite Monitoring Web Service

Dust Monitoring System

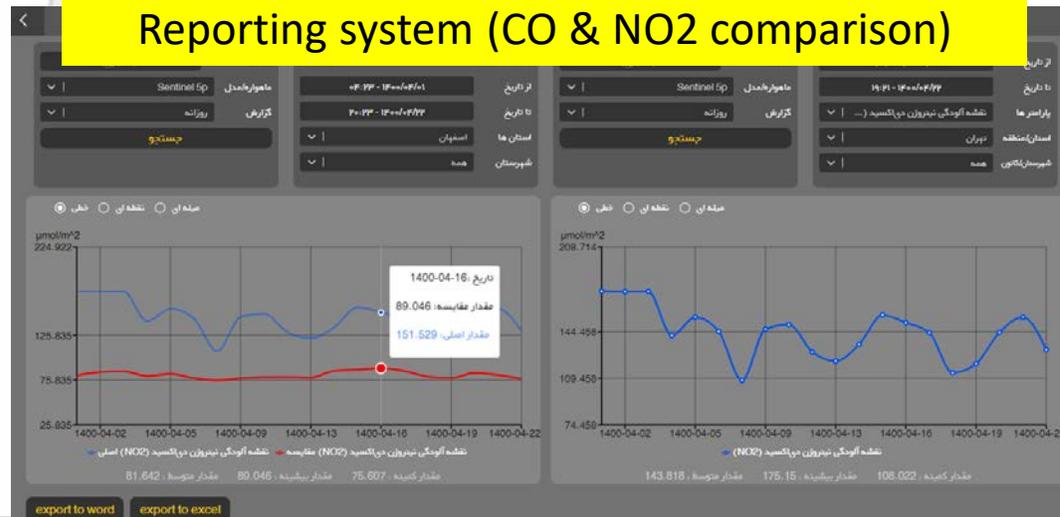
NO2 concentration map



Wind direction map



Reporting system (CO & NO2 comparison)



Satellite Monitoring Web Service

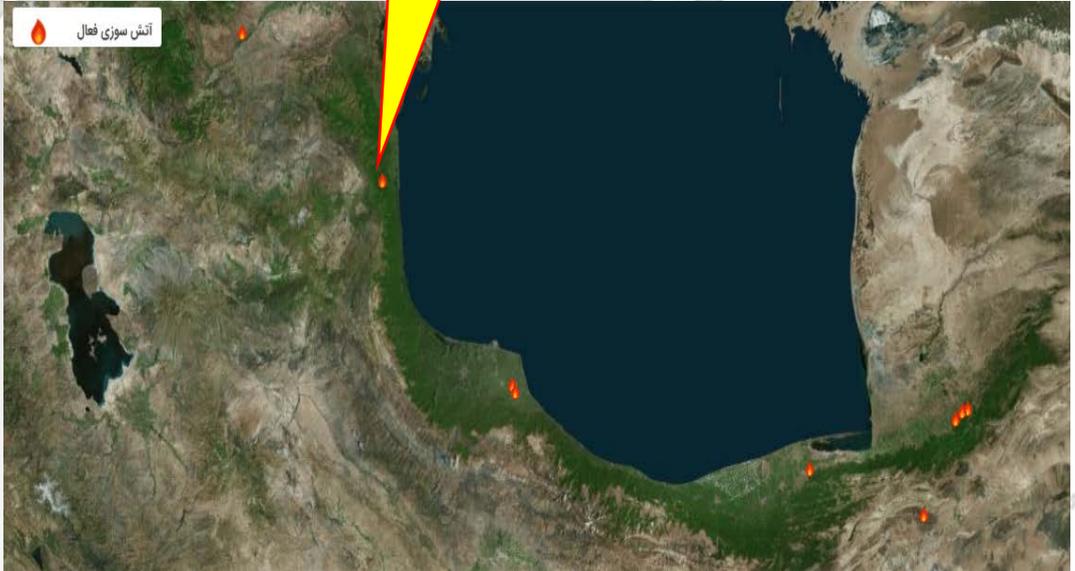
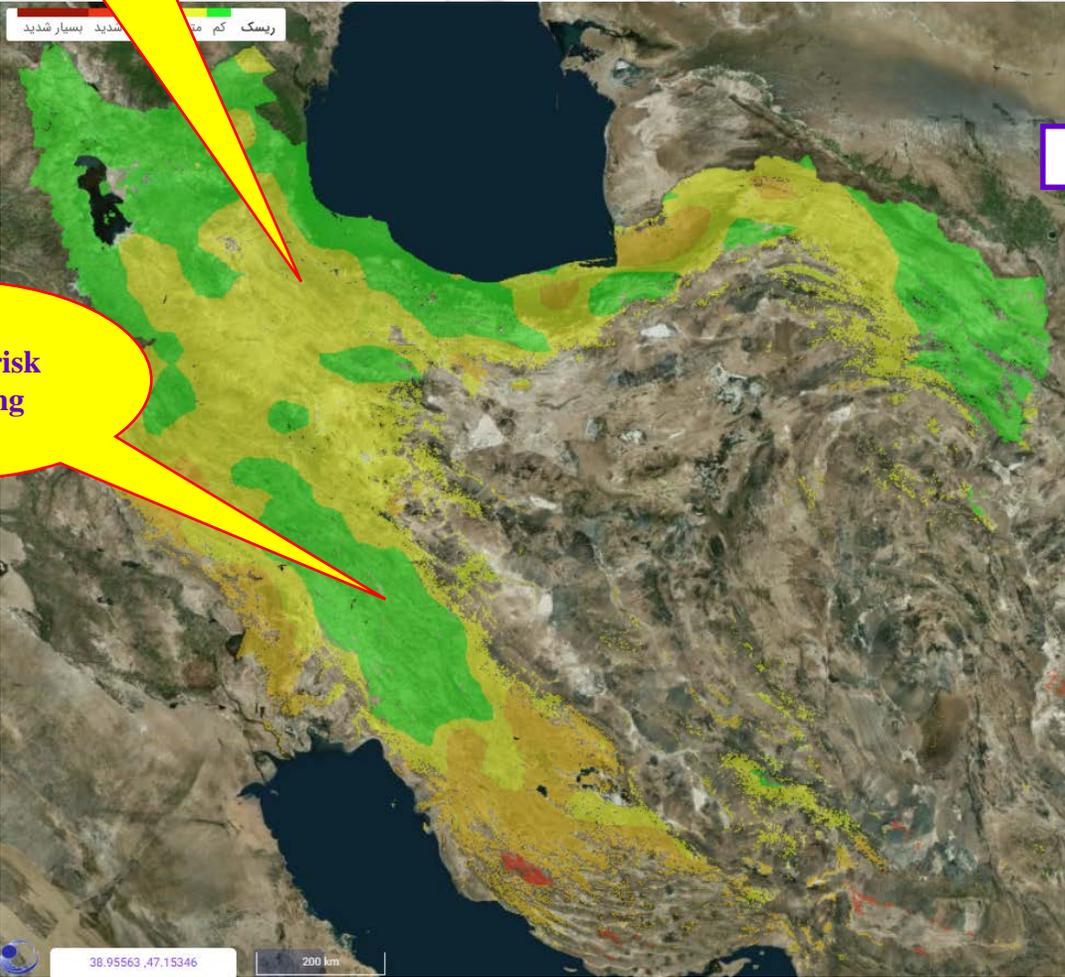


Medium Fire Risk Monitoring

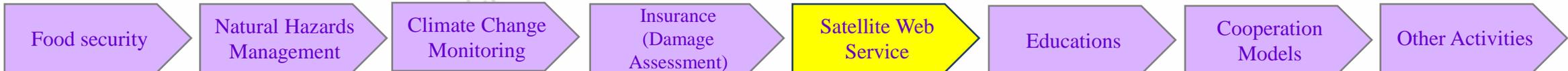
Fire risk monitoring system

Active Fire Detection

active fire monitoring system



Low Fire risk monitoring

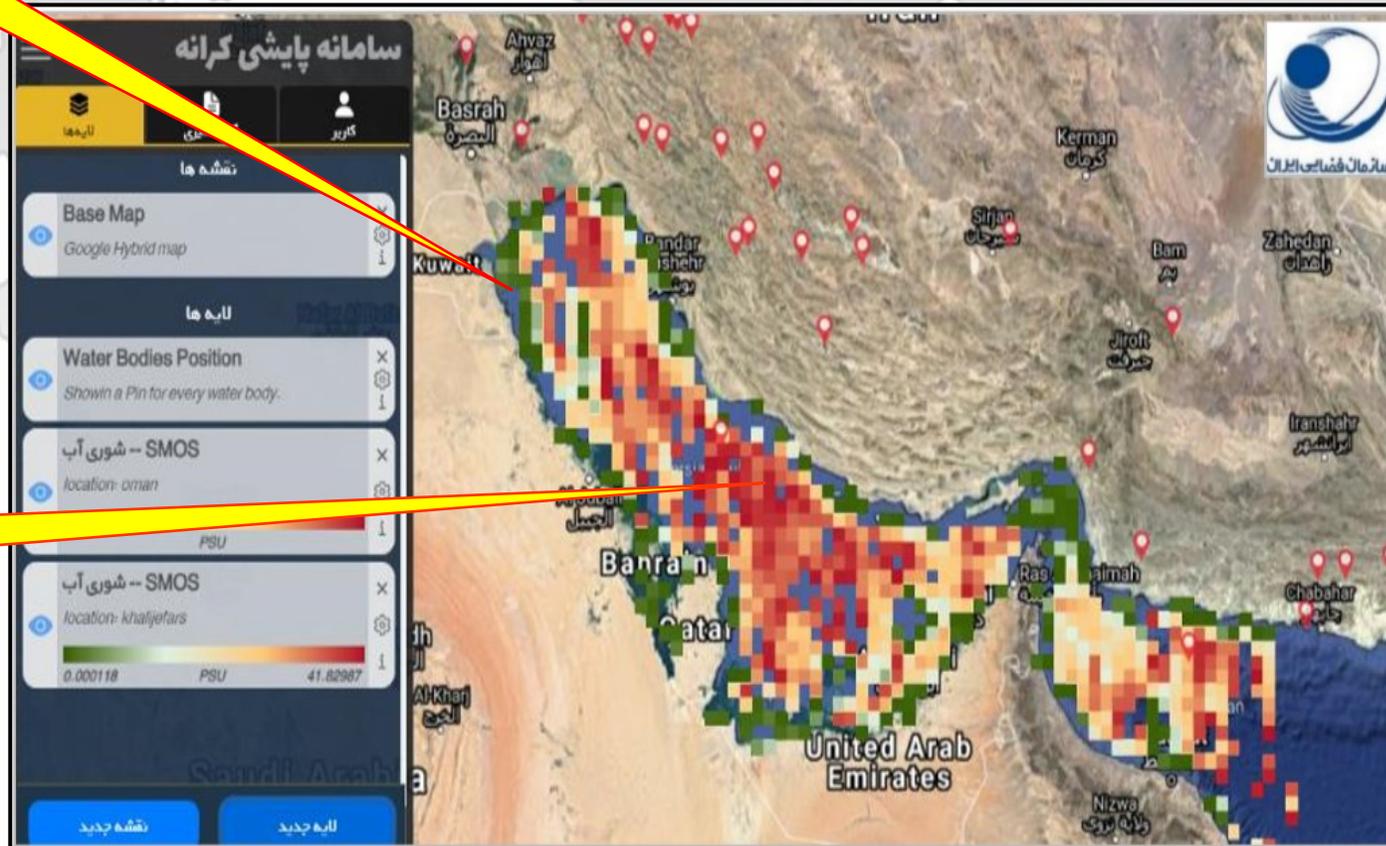


Satellite Monitoring Web Service

Water Quality Monitoring System

Low Water Salinity

High Water Salinity



Setting up satellite monitoring center



Satellite Monitoring Center

Food security

Natural Hazards
Management

Climate Change
Monitoring

Insurance
(Damage
Assessment)

Satellite Web
Service

Educations

Cooperation
Models

Other Activities

Education

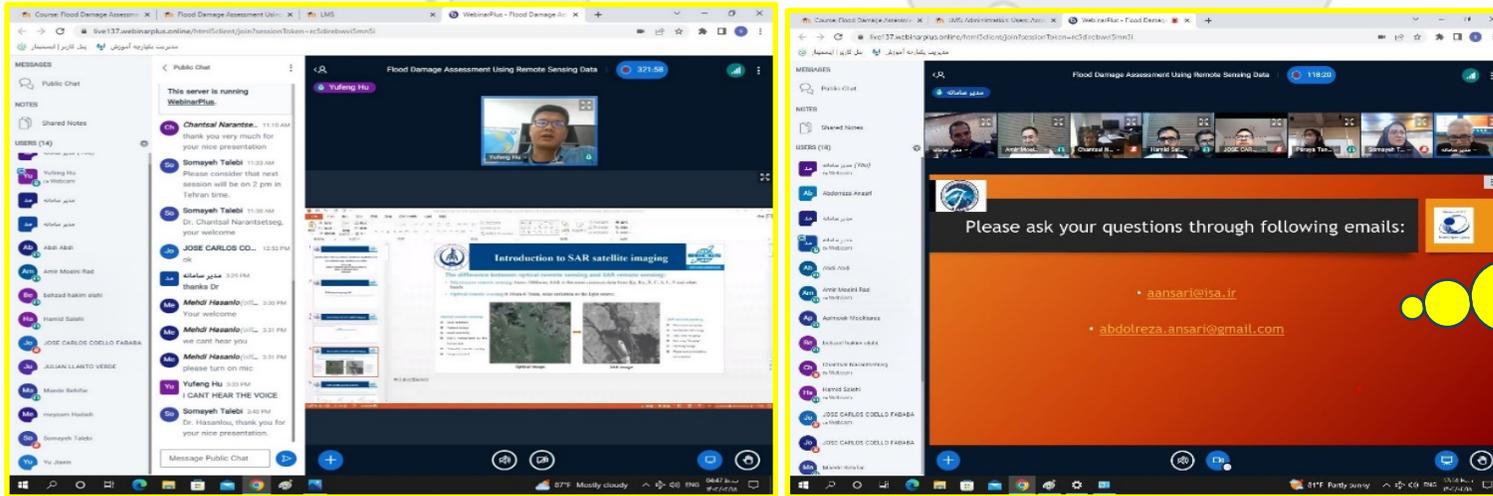
International Training Course



Course Title	Technology Transfer (operational project with the training course) (month)	Duration of training courses (week)
Natural Hazards: Dust Storm Origin Detection	6	1
Natural Resource Management: Forest Area Estimation	6	1
Natural Hazards: Drought Risk Assessment	8	1
Precision Agriculture: Crop Type and Area Estimation	10	1
Natural Hazards: Water Pollution Assessment	8	1
Natural Hazards: Flood Damage Assessment	10	1



Participating Countries



International Training Course of Flood Damage Assessment by SRI

Food security

Natural Hazards Management

Climate Change Monitoring

Insurance (Damage Assessment)

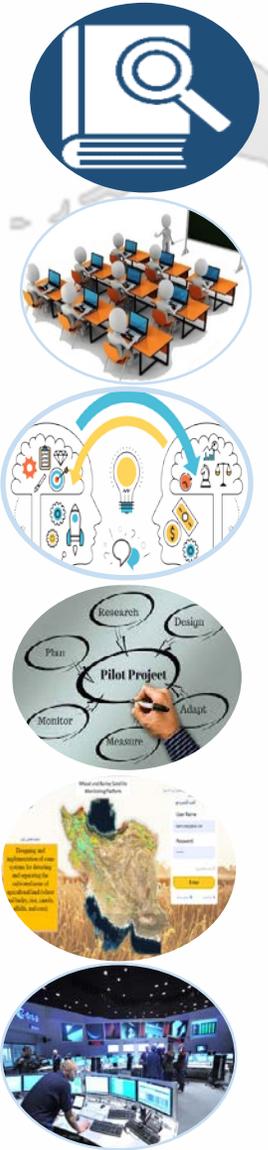
Satellite Web Service

Education

Cooperation Models

Other Activities

The Remote Sensing Services that can be Provided are Proposed in Six Models:



1-Job
2-Human Resources
3-Human Resources
4-Infrastructure
5-Service
6-Service

**PROJECT CONTRACT
ON
IMPLEMENTATION OF
"ESTABLISHING AND OPERATING FLOOD MONITORING
AND WARNING SYSTEM USING SATELLITE IMAGERIES"
PROJECT
BETWEEN
ASIA-PACIFIC SPACE COOPERATION ORGANIZATION (APSCO)
AND
IRANIAN SPACE RESEARCH CENTER (ISRC)**

Contract No:
APSCO/PO&DS/1ST BATCH OF DSSP APPLICATION/IMP_C_002

1/9

(i) For Project Management Issues in APSCO:
Ms. Betty Zhou
Tel: +86-10-63702677 Ext.806
Fax: +86-10-63702286
E-mail: zhoutianyi@apsco.int

(ii) For Project Coordinator Issues in ISRC (Project Lead):
Dr. Amir Moeini Rad
Tel: +98-21-63192140
Fax: +98-21-66008615
Email: IRCHflood@isrc.ac.ir

ARTICLE 14: ENTRY INTO FORCE
14.1 This Contract shall enter into force on the date of its signature. This Contract is signed in English language, signed in 2 original copies, one for each.

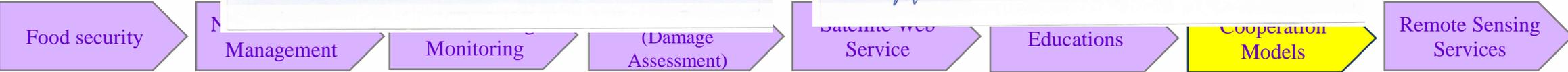
FOR AND ON BEHALF OF APSCO FOR AND ON BEHALF OF ISA

Ms. Yu Qi Dr. Hassan Salarieh
Secretary General Head of the
Asia-Pacific Space Cooperation Iranian Space Research Center (ISRC)
Organization (APSCO)

Date: Oct 27, 2022 Date: Oct 27, 2022

9/9

- Research
- Education
- Technology Transfer
- Project Implementation
- Service
- Product sale

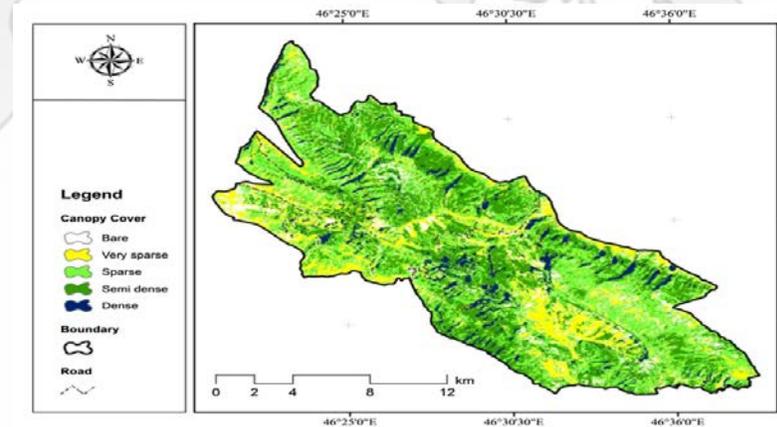


The Remote Sensing Services that can be Provided are Proposed in Six Models:

Research

1-Joint research project in order to use the scientific capacity of both countries

- ✓ Algorithm development
- ✓ Field sampling
- ✓ Algorithm localization and calibration



Food security

Natural Hazards
Management

Climate Change
Monitoring

Insurance
(Damage
Assessment)

Satellite Web
Service

Educations

Cooperation
Models

Other Activities

The Remote Sensing Services that can be Provided are Proposed in Six Models:

Education



2-Holding specialized training courses

- ✓ Theory and concept
 - ✓ Hands-on experience
 - ✓ Rest and tour at the end of the training courses
- in Food security, climate change, crisis management and etc.,



The Remote Sensing Services that can be Provided are Proposed in Six Models:

Technology Transfer



3-Holding the training course with the implementation of the pilot project

- ✓ On-the-job trainings
- ✓ Project implementation for 6-12 months consist of:
 - Algorithm development
 - Field sampling
 - Algorithm calibration
 - Analysis of the results

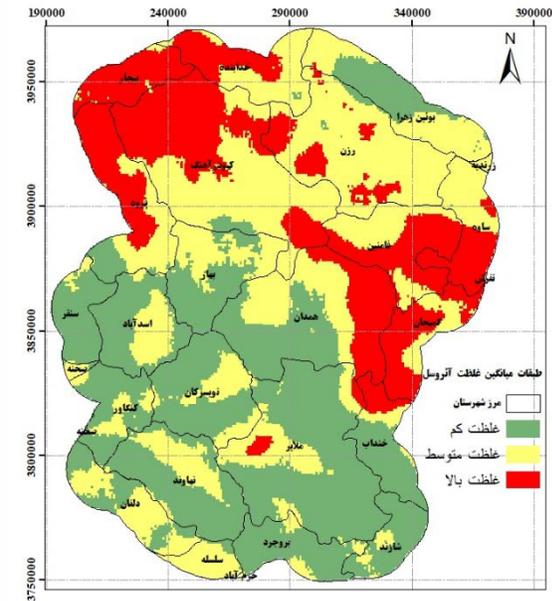
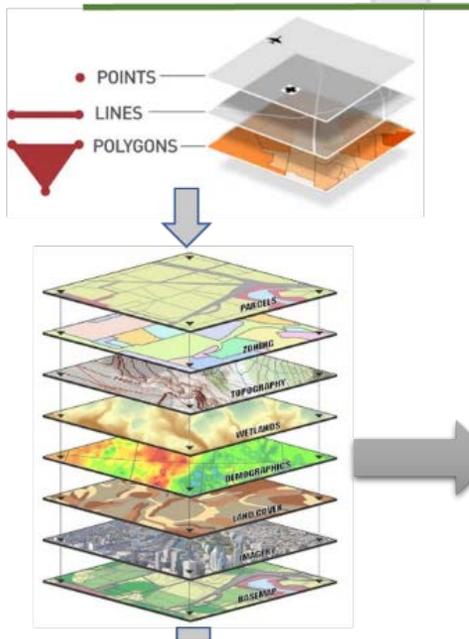


Project Implementation

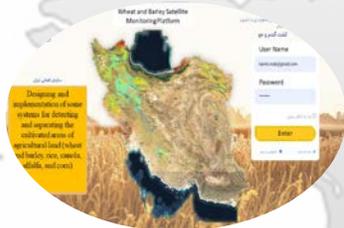


4-Implementation of the operational project

- ✓ Implementation of a pilot project based on the announcement by the target country
- ✓ Algorithm development
- ✓ Field sampling
- ✓ Algorithm calibration
- ✓ Analysis of the results



The Remote Sensing Services that can be Provided are Proposed in Six Models:



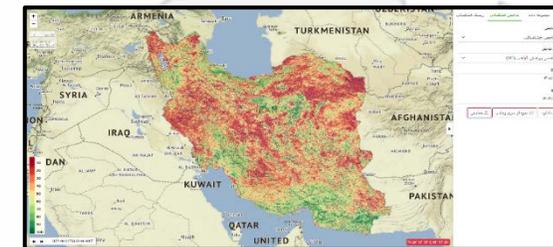
Service

5- Satellite monitoring web services

- ✓ System preparation and calibration for the target country
- ✓ Provide username and password
- ✓ Training and support
- ✓ Ability to output weekly, monthly, and yearly in different fields of remote sensing applications



- ✓ Fire
- ✓ Air pollution and dust storm
- ✓ Floods
- ✓ Land subsidence
- ✓ Forest
- ✓ Fishing sites (areas)
- ✓ Cloud and snow
- ✓ Water catchment
- ✓ Earth displacement
- ✓ Drought
- ✓ Wheat, Rice, Barley, Beet, Rapeseed ,and Corn
- ✓ The unauthorized construction
- ✓ and ...



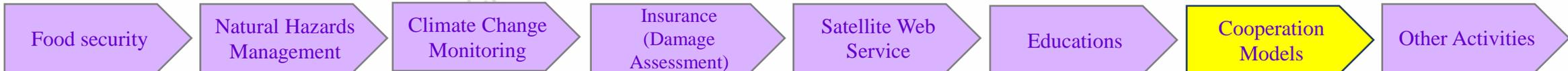
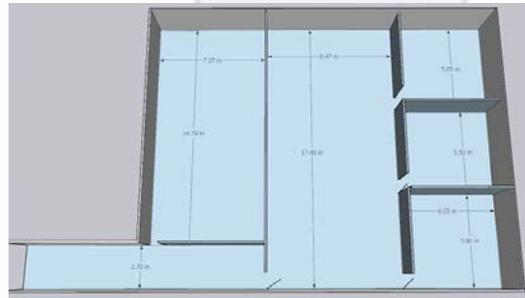
The Remote Sensing Services that can be provided are Proposed in Six Models:

Product sale



6-Setting up satellite monitoring center

- ✓ Infrastructure design
- ✓ Server design and implementation
- ✓ Upload the system to the server
- ✓ Education
- ✓ Support





Thank You

