

ISA'S DATA SHARING AND GROUND RECEIVING STATION DEVELOPMENTS

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Iranian Space Agency

NATIONAL SPACE PROGRAMS AND ACTIVITIES

Iranian Space Agency (ISA)

- National body for multi-sectorial coordination and collaboration in space technology applications
- Establishment: 2004
under the *Ministry of Communications and Information Technology*
- Statute approval: 2005, in 2007 it is changed and received approval in 2008
- On October 29, 2010 ISA is annexed to the *Presidency Institution*
- Institutional Chart: is in the process of approval
- Plan: considerable investment in infrastructure in space technology during the fourth master plan of country, which is being extended to the next master plan.

NATIONAL SPACE PROGRAMS AND ACTIVITIES

ISA covers all space-related activities as a single state organization.

ISA aims in

***Policy-making on:**

the applications of space technologies aimed at the peaceful uses of outer space, manufacturing, launching and use of national and research satellites,

***Approving the space-related programs of state and private institutions and organizations,**

***Approving the long- and short-term programs of the country's space sector,**

***Promoting partnership between the private and cooperative sectors in efficient uses of space; and**

***Developing guidelines concerning regional and international cooperation in space issues**

NATIONAL SPACE PROGRAMS AND ACTIVITIES

Political Commitment and Institutional Aspects

- *Wide-ranging program for development and benefiting the potentials and possibilities**
- *Large pool of qualified and trained personnel**

NATIONAL SPACE PROGRAMS AND ACTIVITIES

* More than seven universities conducting undergraduate and postgraduate courses covering different areas of space science and technology, including

- remote sensing,
- GIS,
- satellite meteorology,
- satellite communications,
- aeronautics and
- astronomy

* About 14 other scientific institutions and bodies also engaged in space science research and education

Fields of activity include:

- Agricultural studies and assessments
- Technology promotion
- Geological studies in variety of fields
- Surveying and mapping (producing and correcting)
- Water resource management
- Weather and climate studies and forecast
- Environmental pollution

NATIONAL SPACE PROGRAMS AND ACTIVITIES

ISA is mandated to develop the country's remote sensing capabilities in all aspects of its technology and applications.

* Prior to establishment of ISA in February 2004, IRSC were functioning as the main national agency responsible

*Remote sensing; principal component of Iran's national space program.

*Besides ISA, approximately 50 agencies in the country involved in remote sensing technology and its applications, including government ministries and organizations, universities and private sector.

RS and GIS being used by the entities in a variety of applications in

*agriculture,

*water resources management,

*geological mapping,

*mineral exploration,

*rangeland management,

*cartography,

*land-use planning and desertification

EARTH OBSERVATION SATELLITE SYSTEMS

Earth observation satellite receiving facilities

Iran installed its ground station for receiving satellite (*Landsat*) remote sensing data in 1976 at Mahdasht (Karaj), 65 km northwest of Tehran.
the earliest ground receiving station in the entire region that had been commissioned

Mahdasht Satellite Receiving Station (MSRS)

EARTH OBSERVATION SATELLITE SYSTEMS

Earth observation satellite receiving facilities



Mahdasht Satellite Receiving Station (MSRS)

Iranian Space Agency

EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT

Mahdasht Satellite Receiving Station

- * *currently affiliated with ISA,*
- * *officially included in the Alborz Space Center (Mahdasht Space Center),*
- * *established in 1972*
- * *the activities and development of the station is chronicled as:*



Period 1972-1978

Period 1978-1991

Period 1991-1996

Period 1996-2002

Period 2002-date

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EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT

Mahdasht Satellite Receiving Station

Period of 1972-1978:

- * US launches Earth Resource Technology Satellite (ERTS-1) -later called Landsat-1- in 1972
- * an office for data collection in the Budget and Planning Organization is established
- * with US supports Iran decided to proceed for direct acquisition of satellite data
- * it was agreed that Iran supply data to the 33 countries under coverage of Iran's receiving antenna to be installed
- * in 1974 GE and Iran agreed to install a satellite data receiving station
- * under the Plan for Satellite Data Applications the remote sensing activities officially continued in the National Radio and Television Organization of Iran
- * the current site of MSRS at Mahdasht, Karaj was selected for establishing the station for direct satellite data receiving
- * the installation process began in 1976 and two phases including tracking and data acquisition completed and operationalized by 1978
- * three full coverage of Landsat satellite data of Iran was acquired and archived by the station.

EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT

Mahdasht Satellite Receiving Station

Period of 1972-1978:

- Phases planned for MSRS:

Phase I, tracking the Earth resource satellites and direct data acquisition from those satellites

Phase II, recording and data correction

Phase III, analysis and data processing

Phase IV, data management

Phase V, data printing, proliferation and production

- * the Islamic Revolution in Iran in 1978 causes suspension of the project
- * the management and coordination of the plan is put on Iran



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EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT

Mahdasht Satellite Receiving Station

Period of 1978-1991:

- * long-lasting ambiguity
- * management of the Station is shifted from the National Radio and Television Organization to the Budget and Planning Organization again
- * the main and considerable success for the MSRS in this period:
 - Operationalizing and conducting the installed facilities for direct data acquisition from NOAA
 - Training the experts and technologists for transferring the technology of satellite applications
 - Installation and operationalizing the II, III, IV & V phases for data production and proliferation
 - Production and making available the full coverage of satellite data of Iran
 - Possibility for access to the satellite data of Iran for implementing different projects and plans around the country
 - Holding workshops for transferring the knowledge and expertise of satellite data applications

EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT

Mahdasht Satellite Receiving Station

Period of 1991-1996:

- * In 1991 the Parliament of I. R. Iran passed the law for transferring from the Plan for Satellite Data Applications to the state-run firm of the Iranian Remote Sensing Center (IRSC)
- * IRSC became affiliated to the Ministry of Post, Telegraph and Telephone (MPTT) of the date; the latter changed to the Ministry of Communications and Information Technology according to the approval of the Iranian Parliament on 10 December 2003

EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT

Mahdasht Satellite Receiving Station

Period of 1996-2002:

* Approval of the law for changing the Plan for Satellite Data Applications to the state-run firm of IRSC caused some legal problems for IRSC in terms of securing its financial sources and inability for developing its plans and programs

* The authorities decide to downsize IRSC and confined the activities of MSRS that finally led to suspension of the activity of the station temporarily



Iranian Space Agency

EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT

Mahdasht Satellite Receiving Station

Period of 2002-date:

- * Administrational and organizational changes in MPTT and its transition to the Ministry of Communications and Information Technology followed by the establishment of the Iranian Space Agency (ISA) in February 2004.
- * ISA covered officially, according to its establishment law, all the remote sensing activities throughout the country.
- * the activation of MSRS and its revival was highly considered by the authorities.
- * reconstruction and operationalizing of MSRS practically began in 2003
- * all the active receiving facilities of ISA in Saadat Abad headquarters in north of Tehran translocated gradually to MSRS; new specialists as well as staff have been employed.

EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT

Mahdasht Satellite Receiving Station

Period of 2002-date:

* Although the antenna for receiving from Landsat has been abandoned, other facilities for receiving new generation satellites data in both S- and X-band frequencies that are used by existing and future satellites including:

- NASA's TERRA-MODIS [Moderate Resolution Imaging Spectro-radiometer] (since October 2001)
- Russian OKEAN satellite,
- Indian IRS [Indian Remote Sensing] (In September 2002, the station was made capable of receiving data from IRS; it was active for only few years)
- NOAA-AVHRR [Advanced Very High Resolution Radiometer] (The center has obtained/ stored more than ten years from NOAA)
- Chinese FY-2 meteorological satellite
- plans for receiving from other satellites is in the way

* this all is in line with the plans for concentrating the remote sensing activities of ISA in MSRS and developing it to become the Alborz Space Center.

* The site will comprise of the most comprehensive and multi-task ground space complexes, laboratories as well as work, living and leisure facilities for the Iran's space science and technology specialists, scientists and officials.

Iranian Space Agency

EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT



Mahdasht Satellite Receiving Station (MSRS) *Iranian Space Agency*

EARTH OBSERVATION SATELLITE SYSTEMS

GROUND RECEIVING STATIONS DEVELOPMENT

Other ground receiving stations

- * Iran continuously developing its ground segments and facilities for communications and data acquisition throughout the country for many years
- * Boomhen, Asad-Abad and Isfahan are the ground stations established mainly for communication purposes,
- * MSRS being developed to the Alborz Space Center
- * ISA's remote sensing activities are presently conducted by its "Remote Sensing Administration"; it is almost situated in the Alborz Space Center.
- * The official tasks of the former IRSC are presently allotted by the Remote Sensing Administration of ISA.
- * other ground stations established for receiving remote sensing data managed and controlled by the private sector, universities and non-civilian sector
- * ISA is in the process of developing the ground facilities in a few new sites in
Tabriz (East Azerbaijan Province),
Isfahan (Isfahan Province),
Shiraz (Fars Province),
Mashad (Khorasan-e Razavi Province)
Chabahar (Sistan and Baluchistan Province).

Iranian Space Agency

EARTH-SPACE DATA & KNOWLEDGE SHARING

DATA SHARING DEVELOPMENT

- * In addition to the activities and plans for direct satellite data receiving which is subsequently archived for the future use, ISA actively develops its plans for providing, supplying and archiving data retrieved through the third party bodies including the domestic and international firms and organizations which provide non-real-time data for enjoying the needs of the country's user community
- * ISA archiving system is searchable through the web site of the agency that provides quick-looks making the potential and interested users capable of finding and locating the available archived data in the data archive of the Iranian Space Agency based in Alborz Space Center
- * The users then may order their needed data through the users' data supplying office of the Iranian Space Agency
- * The archive is planned to be developed and extended to be included in a comprehensive data center to comply the increasing needs of the community of data users domestically and internationally

NATIONAL SPACE PROGRAMS AND ACTIVITIES

DATA SHARING DEVELOPMENT

- * ISA initiated two databases on
earth resources satellite data and
remote sensing education courses in the country,
& more databases are in the way

EARTH-SPACE DATA & KNOWLEDGE SHARING

DATA SHARING DEVELOPMENT

- * ISA contributes to the data sharing initiatives in national, regional and international levels
- * the activity includes the involvement in the initiatives such as UN-SPIDER in the international level, UN-ESCAP RESAP and APSCO data sharing plans in the regional level mainly focusing on the disaster mitigation and management plans.
- * ISA has developed the regional office for UN-SPIDER which is capable of providing data services to inland and the neighboring countries in case of the advent of disasters.
- * official efforts and commitments is continued to establish a center for informed space and communication-based disaster management in Iran under the ESCAP's Regional Space Application (RESAP) initiative

READY TO COOPERATE JOINTLY IN BILATERAL, REGIONAL, GLOBAL LEVELS

- * ISA is now ready and interested to contribute and participate in more plans for data sharing plans particularly with the ISNET member countries.
- * It is hoped that the current Expert Meeting will suggest and elaborate suitable ways and plans in this connection.

Thank you!