



**TÜBİTAK**

# **Role of TÜBİTAK for Recent Developments in the Field of Space in Turkey**

**Yunus Emre ARSLANTAŞ**

**The Scientific and Technological Research Council of Turkey  
(TUBITAK)**

**8 February 2011, Vienna**

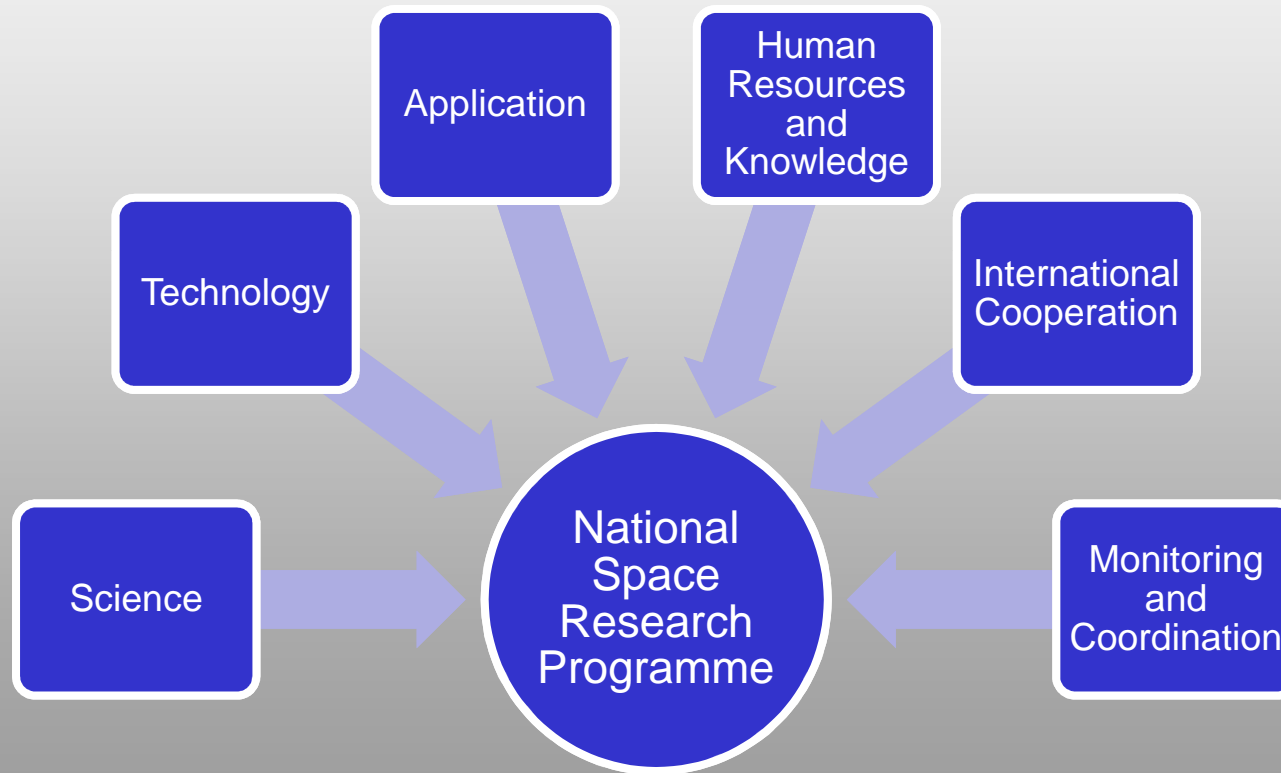
# National Space Research Programme of Turkey

Space Research was identified under the custody of Prime Ministry as a **privileged area** at the Supreme Council for Science and Technology meeting in 2004

- ➔ The 1<sup>st</sup> National Space Research Program adopted on **10 March 2005** was prepared entirely by Turkish space stakeholders and by considering the country's specific capability, capacity, infrastructure and culture.
- ➔ 110 participants from **Government institutions, universities, research centers and private companies** contributed to the Program
- ➔ **TÜBİTAK** will **coordinate** the National Space Research Programme together with other space stakeholders and is responsible for its implementation.

# National Space Research Programme of Turkey

The main goal of the program is to establish a space R&D infrastructure in 10 years and to create the necessary national mechanisms to maintain it.



# INTERNATIONAL COOPERATION

## Before 2005

Committee On Space Research (COSPAR) Membership of TÜBİTAK - 5 June 1996



## Between 2005-2010

Agreement Between the Government of Republic of Turkey and European Space Agency  
22 September 2006

TÜBİTAK Space Tech. Research Inst. - Committee on Earth Observation Satellites  
(CEOS) Membership - October 2006

TÜBİTAK - European International Space Year (EURISY) Membership - 4 June 2007

The Government of Republic of Turkey - Group on Earth Observations (GEO)  
Membership - 20 May 2008

Memorandum of Understanding Between TÜBİTAK and ROSCOSMOS - 6 August 2009

TÜBİTAK - International Astronautical Federation (IAF) Membership - 29 October 2009

The Government of Republic of Turkey - Asia Pacific Space Cooperation Organization  
(APSCO) Membership - 2011

# INTERNATIONAL COOPERATION

## BILATERAL RELATIONS

• **Roscosmos (Federal Russian Space Agency)**

- **DLR (German Aerospace Center)**
- **UK Space Agency (BNSC)**
- **NSO (Netherlands Space Office)**

## MULTILATERAL RELATIONS

**On Behalf of Government of Republic of Turkey**

- **ESA (European Space Agency)**
- **APSCO (Asia-Pacific Space Cooperation Organization)**

### **Institutional Relations**

- **IAF (International Astronautical Federation)**
- **GEO (Group on Earth Observation)**
- **EURISY**
- **CEOS**
- **UN OOSA (United Nations)**

# INTERNATIONAL EVENTS ORGANIZED IN TURKEY



- ➔ **“UN/ESA/Turkey Space Technology Applications for Socio-Economic Benefits Workshop, 14-17 September 2010 Istanbul**
- ➔ 14th GEO Architecture and Data Committee meeting, 1-3 September 2010 Ankara
- ➔ 13th GEO Science and Technology Committee meeting , 24-26 March 2010 Ankara
- ➔ **3rd GEO European Projects Workshop**, organized by the European Commission, 8–9 October 2009 Istanbul
- ➔ GEO-CEOS Quality Assurance Framework for Earth Observation (QA4EO) Workshop, 29 Sept-1 Oct 2009 Antalya, by TUBITAK Space Ins.
- ➔ ESA/EURISY Conference “Areas and Mechanisms for Collaboration Between Turkish and European Actors in Space Activities” , 2007 Istanbul, by ESA-EURISY-TÜBİTAK

## INTERNATIONAL EVENTS ORGANIZED IN TURKEY

→ “Turkey-Russia Space Research and Technologies Joint Workshop” TUBITAK-Roscosmos December 2010, Gebze

→ “TUBITAK – German Aerospace Center (DLR) Cooperation Workshop ” February 2010, Ankara

→ “TUBITAK – Netherlands Space Office Cooperation Workshop” April 2008, Ankara

→ “Turkish - British Space Science and Technology Cooperation Workshop” November 2006, Gebze

→ “TUBITAK – National Space Agency of Ukraine (NSAU) Cooperation Workshop” - January 2005, Ankara

→ **In November 2011 GEO VIII. Plenary Meeting will be hosted in Turkey**

# Institutionalization and Infrastructure

In Turkey Industry, Universities and Public Foundations have established ;

- **Institutes (Space Technologies Research Center)**
- **Companies (Space Technologies)**
- **Research Centers (Remote Sensing, Astrophysics)**
- **Branch Offices and Directorates**
- **Research Groups (Satellite Design Group)**
- **Laboratories (Satellite Design, Integration and Test)**

which have direct or indirect relations with Space. Vision, Mission and Objectives have been revised considering “Space” as the target.



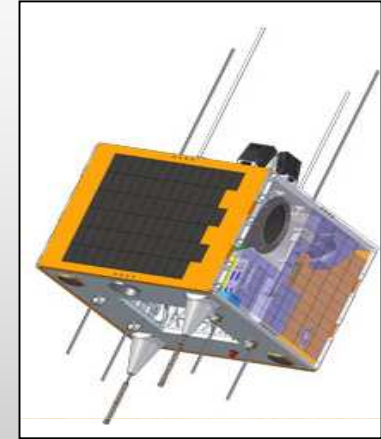
# Support for Space Research

<b>Projects</b>	<b>Number of Projects</b>
<b>Science</b>	<b>95</b>
Astrophysics	37
Astronomy	8
Near Space	7
Earth Science and Observation	43
<b>Technology</b>	<b>73</b>
Space Technologies	48
Rocket	11
Advanced Aerospace	11
Space Infrastructure	3
<b>Application</b>	<b>145</b>
Remote Sensing and GIS	89
Global Navigation Systems	7
Meteorology	14
Satellite Communication	35
<b>Human&amp; Public Awareness</b>	<b>9</b>
<b>Overall</b>	<b>322</b>

# Satellite Projects

## RASAT SATELLITE

RASAT is the second remote-sensing satellite of TÜBİTAK Space Tech. Reserch Ins. .RASAT, having a high-resolution optical imaging system and new modules developed by Turkish engineers, is the first Earth-observation satellite designed and manufactured in Turkey. RASAT will be launched from Dombarovskiy Launch Site in April 2011.



## GÖKTÜRK 2

Göktürk-2 project is the first step in the formation of facility, equipment and personnel infrastructure and in meeting the future satellite requirements locally. TÜBİTAK Space Tech. Reserch Ins. and Turkish Aerospace Industries Consortium has all the system level responsibility. The 2.5 Meter Resolution Scientific Research and Technology Development Satellite (GÖKTÜRK 2) project is still on going.

# Education and Public Awareness



Introducing space and space sciences to the students, teachers and the public (5000 students)	<i>Observatory of Ankara University, Ankara, 2008</i>
National Observation Festival (500 person/year)	<i>TÜBİTAK National Observatory, Antalya,</i>
Education of Teachers about Space	<i>Sabancı University, İstanbul, 2008</i>
Space Summer Camp - Space for Kids	<i>Middle East Technical University, Ankara, 2009-2010</i>

- TUBITAK International MSc. and PhD Fellowship Programmes (24 students have been sent to USA and European Universities. 4 of them returned and started to work in space companies/institutes in Turkey)



## **UN/Turkey/ESA Workshop**

on

### **Space Technology Applications for Socio-Economic Benefits Istanbul, 14-17 September 2010**

Hosted by

The Scientific and Technological Research Council of Turkey (TUBITAK)

In cooperation with

The National Aeronautics and Space Administration (NASA) and  
The International Society for Photogrammetry and Remote Sensing (ISPRS)

[www.tubitak.gov.tr/spaceworkshop](http://www.tubitak.gov.tr/spaceworkshop)

# UN/TURKEY/ESA SPACE WORKSHOP

The specific outcomes of the workshop:

- ✓ The workshop provided an opportunity for scientists and engineers from different countries engaged in the use of space technology for the benefit of their communities to share their experiences, and explore opportunities for collaborative research and application studies
- ✓ The presentation sessions provided participants with the opportunity to learn how the use of space technology could benefit various areas, such as aviation, maritime and land transportation, urbanization, mapping and surveying, human health, disaster management, environmental monitoring and natural resources management

## Working Groups

### Main Themes

- Urbanization and transportation
- Water resources and agriculture
- Air pollution and energy
- Disaster Management
- Natural resource management
- Extraterrestrial exploration

### Cross Cutting Sub-themes

- Weather and climate
- Human health
- Uncertainty and risk assessment
- Economic valuation
- Education, outreach and communication
- International space law
- Satellite development

# UN/TURKEY/ESA SPACE WORKSHOP (Cont.)

- 120 participants from 25 countries
- 6 Sessions in 5 Areas
- 59 Presentations
- 7 Thematic Areas for Working Groups
- 7 Cross-cutting sub-themes



# GEO VIII Plenary Meeting



15-17 November 2011 GEO VIII. Plenary Meeting will be held in Turkey, hosted by The Scientific and Technological Research Council of Turkey.



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