

**TURKISH NATIONAL UNION of GEODESY AND  
GEOPHYSICS**

**NATIONAL REPORT  
OF  
METEOROLOGICAL AND ATMOSPHERE SCIENCES  
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FOR  
2003 – 2007**

**METEOROLOGICAL AND ATMOSPHERE COMMISSION  
OF TURKEY**

**([www.meteor.gov.tr](http://www.meteor.gov.tr))**

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## **INTRODUCTION :**

The Turkish National Commission for Meteorological and Atmosphere (TUMAK), has coordinated in the 2003-2007 period the scientific studies on Turkey . The commission is mainly supported by the General Director of Turkish State Meteorological Service ( TSMS ) Turkish State Meteorological Service which was established on 10 February 1937 is only authorized governmental establishment to do following meteorological related works and services:

- . Establish and operate weather observing stations for synoptic, climatological and aviation purposes;
- . Prepare and issue weather forecast reports for short, medium and long range;
- . Provide meteorological data and services to public and military;
- . Coordinate and carry out international activities;
- . Coordinate and carry out research activities;

## **STRUCTURE :**

The Turkish National Commission for Meteorological and Atmosphere has eleven subcommittees

- . Atmosphere Science
- . Aviation Meteorology
- . Weather Forecasting
- . Agriculture Meteorology
- . Hydrometeorology
- . Climatology
- . Environment Effect
- . Marine Meteorology
- . Telecommunication System
- . Meteorological Observing System
- . Satellite Meteorology

Scientists from the Meteorology and Hydrology Departments of the leading universities such as İstanbul Technical Üniv., İstanbul Üniv., Middle East Technical Üniv., Hacettepe Üniv., İstanbul Üniv., Selçuk Üniv.,

## COMMISSION ACTIVITIES :

Climate Change Coordination Council (İDKK), which regulates and coordinates national studies of Turkey for United Nations Framework Convention on Climate Change, consists of eight sub working groups. Since the working group for the impacts of climate change is under the coordination of Turkish State Meteorological Service , research unit for “climate change and its variability” actively participated and contributed for the preparation process.

By taking into consideration of the contents of National Communication which is required to be submitted to the Secretariat of UNFCCC by Turkey, with the direction of Climate Change Coordination Council (İDKK), it has been prepared with great sacrifice by one of the eight groups of “ Research on Impacts of Climate Change Working Group” submitted its group report on April, 2006 to the Ministry of Environment and Forestry’s General Directorate of Environment Administration. One of the most important contents of this report is the first climate projections made by coordination with İstanbul Technical University (İTÜ) in Turkey.

With this scope, on March, 2005, TÜBİTAK announced the start of the Project “Climate Change Scenarios for Turkey” under the framework “Program of 1007 Public Research-Development”. The first and second progress reports of the project have been published. As it was mentioned above, regional climate model studies form one of the most important work packages of this Project.

Installation of two regional climate models have been completed in our institution and needed data sets for the planned near future studies were set up. One of the models is RegCM3 developed by the Abdus Salam International Centre for Theoretical Physics (ICTP), the other is PRECIS developed at the Hadley Centre at the UK Met Office. Currently, convective parameterization test runs were completed and the analysis of results have been going on. With regard to PRECIS model, jointly with İTÜ, TÜBİTAK’s Project “Climate Change Scenarios for Turkey” under the shared responsibility, for the period of 1960-1990, three separate decadal model runs have been continuing.

By continuing Ozone and UV observations, all the data obtained have been archived in data bank. The ozone data obtained by satellite data and 24 hourly ozone prediction products, which are obtained by improved statistical regression model, have been published on the Intranet and Internet. Other than Ankara, pre-work of four newly purchased UV sensors to install in İstanbul, Antalya, İzmir and Afyon has been carried out.

Ultraviolet data base was initiated. Comparison of obtained UV values with the predictions of WMO’s have been continued. For UV index prediction, preparation of infrastructural work was launched.

With an announcement by TÜBİTAK on March, 2005, the Project under the framework “Program of 1007 Public Research-Development” and titled as “Observation on the Changes in Tropospheric and Stratospheric Ozone/UV-B over Turkey and Analysis of Their Results” is operational since December of 2005. The installation of the project’s instruments was completed and its first and second progress reports have been published.

With regard to solar energy, by choosing the stations near to the middle of NASA's data grid, 1984-2001 insolation data sets are formed and cloudiness and insolation periods data were correlated.

In the area of air pollution and acid rains studies, EURAD model developed at the University of Cologne were brought, installed and made operational with two years agreement in our institution. Test runs of this model continue, all our institution's employees and high level authorized bureaucrats of our Ministry are able to check it on the Intranet. Its products were published on the Internet also.

By testing study results of "Inversion Risk Prediction for Urban Air Pollution", the start is given for its products to be published on the Internet.

Mezoscale Model MM5, together with Global Model products, has been run operationally in local scale as the first time at the end of 2003, and detailed numerical weather prediction products which are generated four times a day with a scale of 7 km for Turkey and its close regions, and with a scale of 21 km for larger areas have been started to be used by weather forecasters.

Three new Doppler weather radars put into operation in 2003 and nowcasting works have been accelerated by using the remote sensing products generated by existing 4 Doppler weather radars in every 7 minutes for western part of Turkey. A nowcasting unit was established in weather Forecasting Centre.

The Project of Regional Forecasting Centres has been initiated and Regional Forecasting Centres in Antalya, İstanbul and İzmir have been put into service in 2005 and 2006 after completion of the technical infrastructure and training activities.

Besides the institutional works, meteorological warnings have been broadcasted by using metrological radio-Meteor FM, internet, fax, e-mail. In addition, a meteorological warning line of 302 was established by collaborating with GSM operators.

Web page of Piri Reis for our marine sector and web page of Hezarfen for aviation sector have been constructed and put into service.

METU 3 wave forecast products (wind speed and direction, wave height and period) are broadcasted in every three hours for Turkey's sea and surrounded seas.

Today many sectors such as aviation, transportation, agriculture, construction, tourism, health, justice, security, national defence, written and visual press, and sports are very much in need of meteorological data support. On the other hand, there is no border for the atmosphere and meteorological information. This is why all meteorological data have to be exchanged by all countries to be able to give a proper and efficient meteorological service to the users. To be able to meet the requirements of different sectors,

The institutional capacity of the Turkish State Meteorological Service should be strengthened. One of the major components of that strengthen process is to modernize the observing network which is the source and first step of all meteorological activities.

To watch the atmosphere and the weather phenomena occurred is getting more and more important for the developing world. To be able to meet the meteorological requirements of the developing world, it is very obvious that there is a necessity for the provision of accurate and timely weather observations which will be the essential input of weather forecasts and numerical weather prediction models, research studies on climate and climate change, sustainable development, environment protection, renewable energy sources, etc. All outputs and products of any system are input dependant. So, accuracy, reliability and efficiency of the products of any meteorological study will depend on its input observation.

It is vital to observe the weather and to make weather prediction timely especially for severe weather conditions to be able to warn the public in due course. So, beneficiaries of the projects need meteorological data to be able to perform their tasks more efficiently. The lack of meteorological support or insufficient meteorological data cause serious problems for the beneficiaries. For example, some flights have to be cancelled due the lack of the meteorological equipment at the airports. Furthermore, disaster management activities can not be planned and implemented properly without meteorological information. On the other hand, the renewable energy source potential, e.g. wind energy, solar energy shall be determined by means of the products derived from that Project.

Some of the important projects realized within the scope of the modernization program are as follows:

- . Establishment of electronic wind measuring system at the airports (41 ea)
- . Establishment of Automated Weather Observing Systems at the airports (29 ea)
- . Establishment of Weather Radars (4 ea)
- . Establishment of Meteorological Satellite Ground Receiving System ( 1 ea)
- . Establishment of GPS Based Radyosonde systems (8 ea)
- . Establishment of Automated Weather Observing Systems (206 ea)

## EDICATION :

Turkish State Meteorological Service was designated as a World Meteorological Organization of Regional Meteorological Training Centre in region VI to organize courses to meet regional needs in education and training in Meteorology and Atmospheric sciences.

As an important component of the modernization program mentioned above, a project of training of trainers was implemented and the key staffs of TSMS have received training courses from manufacturers and international experts on both operation/interpretation and maintenance/calibration of the systems. As a result of those activities, TSMS has caught a very important level on meteorological instruments and observing systems. And then, as an active member of WMO on Regional Meteorological Training Activities, TSMS has planned to organize regular training courses on weather observing systems in line with the general training policy of TSMS to train its own staff for operating the systems more efficiently to increase the meteorological service given as well as to support the activities of Expert Team on Training Materials and Training Activities established by CIMO Management Group (OPAG on Capacity Building (OPAG-CB)/C.1. Expert Team on Training Activities and Training Materials). National and international training courses on Automated Weather Observing Systems (AWOS) and Weather Radars were organized by TSMS in 2005 and 2006 in Turkey. 31 trainees from the other countries and 154 trainees from Turkey participated in those training courses.

## **Training Activities :**

22-25 Eylül 2003

Regional Training Centre, Turkey-Alanya

International Training Course on Satellite Meteorology

Number of Rarticipants: 10

03-07 Mayıs 2004

Regional Training Centre, Turkey-Alanya

WMO Executive Council (EC) Panel of Experts on Education and Training

Number of participants: 18

20-30 Eylül 2004

Regional Training Centre, Turkey-Alanya

International Training Course on Meteorological Telecommunication and METCAP Software

Nuber of participants: 14

04-09 Ekim 2004

Regional Training Centre, Turkey-Alanya

International Workshop on Enhancing South-West Asian Climate Change Monitoring and Indices

Number of Rarticipants: 19

11-15 Nisan 2005

Regional Training Centre, Turkey-Alanya

International Workshop on Nowcasting and Conceptual Models

Number of Rarticipants: 27

06-10 Haziran 2005

Regional Training Centre, Turkey-Alanya

International Training Course on Automated Observing Systems-AWOS

Number of Rarticipants: 16

05-09 Eylül 2005

Regional Training Centre, Turkey-Alanya

International Training Course on PRECIS- Regional Climate Model

Number of Rarticipants: 20

12-16 Eylül 2005

Regional Training Centre, Turkey-Alanya

International Training Course on Weather Radars

Number of Rarticipants: 13

11-13 Ekim 2005

Regional Training Centre, Turkey-Alanya

EUMETSAT, Scientific and Technical Group (STG) and Administrative and Finance Group (AFG) Meetings

Number of Rarticipants: 63

08-19 Mayıs 2006

Regional Training Centre, Turkey-Alanya

WMO Regional Training Seminar for National Instructors of RA VI

Number of Rarticipants: 26

06-15 Haziran 2006

Regional Training Centre, Turkey-Alanya

International Training Course on Electronic Observing Systems

Number of Rarticipants: 19

04-08 Eylül 2006

Regional Training Centre, Turkey-Alanya

International Training Course on Meteorological Telecommunication and TURKMETCAP Software

Number of Rarticipants: 21

14-16 Kasım 2006

Regional Training Centre, Turkey-Alanya

International Training Course on Drought and Desertification

Number of Rarticipants: 17

## **Panel:**

Date : 6 April 2006

Location: Turkish Satate Meteorological Service

Subject: Transportation Effect of Meteorology

Organization: TUMAK ( Meteorological and Atmosphere Sciences Commision of Turkey )

## PUBLICATION LIST :

No	Publication No	Bokk's Name	Author	Number of Unit
1-	2004/1	Ozon and of Ozon Importance	Yılmaz Acar Mustafa Özünlü Mithat Ekici	75
2-	2004/2	Agricultural productivity on effect Climate of Ankara	Melahat Utku	75
3-	2004/3	05 April 2000- Meteorological Analysis of Fire forest	Ayhan Erkan Abduraman Bekereci	200
4-	2005/1	Climate -1	Gültekin Yalçın Emin Bulut Mesut Demircan Yusuf Ulupınar	400
5-	2006/1	Weather Analysis and Forecasting Technics	Mustafa Çöleri M.Yayvan,A.Deniz Ü.Turgut, A.Eryılmaz C.Geçer, A.Güser	1500
6-	2006/2	Meteorological Observation Network	Mustafa Aslan	500
7-	2006/3	Agricultural productivity on effect Climate of Şanlıurfa	Melahat Utku	75