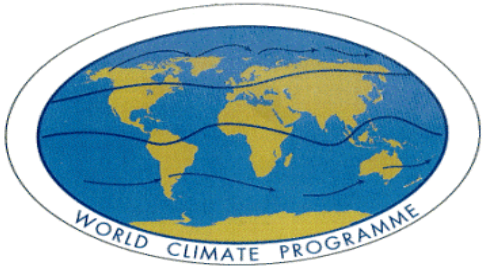
The World Climate Programme (WCP)

WORLD CLIMATE PROGRAMME STRUCTURE



WCP
World Climate Programme

CCl

WCASP
World Climate Applications and Services Programme & **CLIPS**

Goals
develop climate services
increase awareness of benefits
develop practical product methods
increase utilization of information & predictions

WCDMP
World Climate Data and Monitoring Programme

Goals
improve databases & data management
improve climate system monitoring efforts & awareness
develop new data techniques for rescue

CAgM

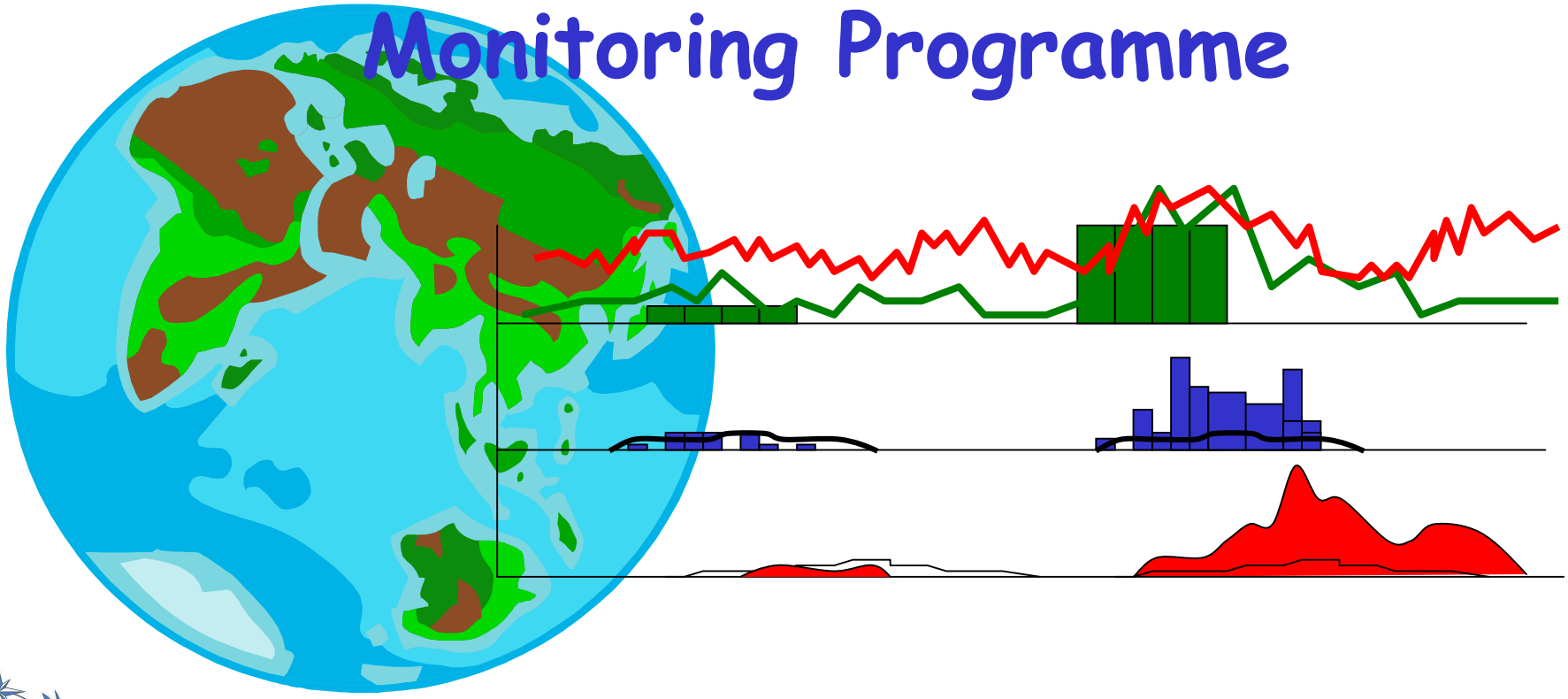
AgMP
Agricultural Meteorology Programme

Goals
to assist members in the provision of meteorological and climate services for agriculture
to assist in sustainable development & economically viable agricultural systems

WCP areas of interest:

- monitoring and understanding the global climate system
- collection, rescue and management of climate data
- detection and assessment of climate variability and changes
- applications of climate knowledge and information & climate services
- Guide to Climatological Practices
- prediction of significant climate variations and improving prediction skill
- impacts of climate variability and change
- early warning and climate alert systems
- guidance, techniques and methodologies for climatology
- capacity building, transfer of knowledge, techniques and guidance
- sustainable development and well-being.

World Climate Data and Monitoring Programme



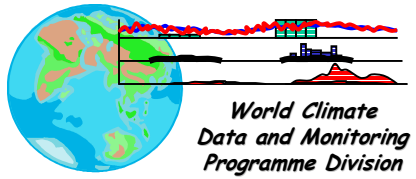
WCDMP Goals

Detection of Climate Change

Analysis of interannual variability of the global climate system

Implementation of methods to rescue, preserve and manage climate data

Preparation and distribution of global and regional data sets, including metadata

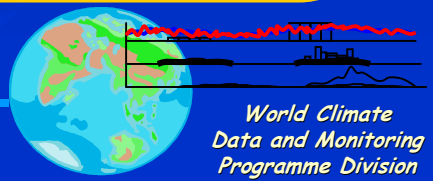


WCDMP
Building for the Future

Climate Watches

Climate Reviews

DARE Climate Database Management

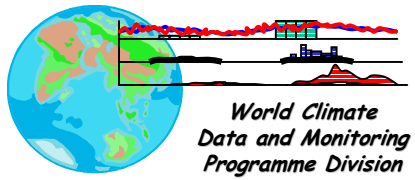


World Climate Data and Monitoring Programme Division

Climate Watch

- The conditions for a problem are present so pay attention'

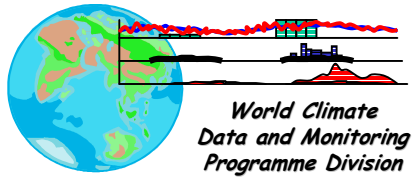
- Climate Watch: the integration of global and regional information as guidance for official NMHS watch



Issues of Urgency:

Climate Watch-- a part of Climate Monitoring

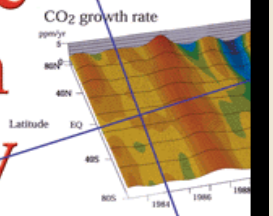
- Climate Monitoring
  - Elevate awareness of risks, for all time-period planning
  - Exploit distributed information
  - Minimize surprises
  - Use climate as a resource



Routine Reviews

Sample information from the impending publication

The Global Climate System Review

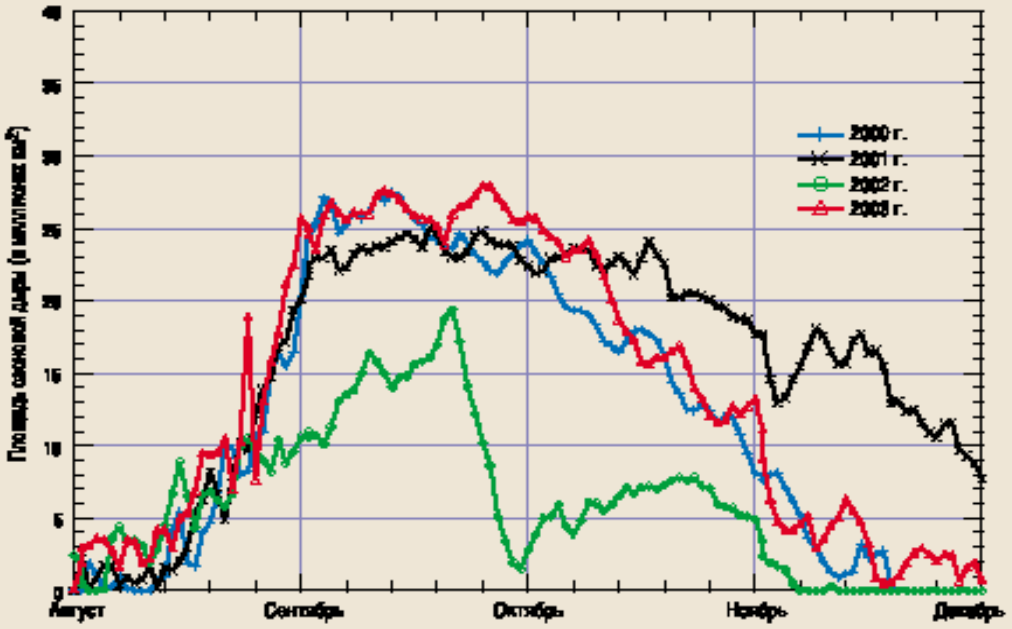


June 1996 - December 2

World Meteorological Organ

WMO-No. 950

ЗАЯВЛЕНИЕ ВМО О СОСТОЯНИИ ГЛОБАЛЬНОГО КЛИМАТА В 2003 г.



Всемирная Метеорологическая Организация

Погода • Климат • Вода

ВМО-№ 966

Data Rescue and Climate Database Management Systems

- DARE
  - To prevent the deterioration of historical datasets and irreversible loss to science and society by developing digital archives of images of climatological paper records
- CDMS
  - Enhancements to support prediction, analysis and applications with six new Climate Database Management Systems (CDMSs)

CDMS Implementations: completed; installation undergoing, planned

CIMH Barbados
Barbados
Cuba
Dominican Rep
Guyana
Haiti
Jamaica
Trinidad & Tobago
Antigua & Barbuda

Anguilla
St.Kitts & Nevis
Montserrat
Dominica
St.Vincent & Gren
Grenada
Turks & Caicos
St. Lucia
British Virgin Islands
Cayman Islands
Bahamas
Netherlands Antil
Belize

AGRHYMET (Niger)
Burkina Faso
Cape Verde
Chad
Gambia
Guinea Bissau
Mali
Mauritania
Niger
Senegal
Sao Tome & Princ

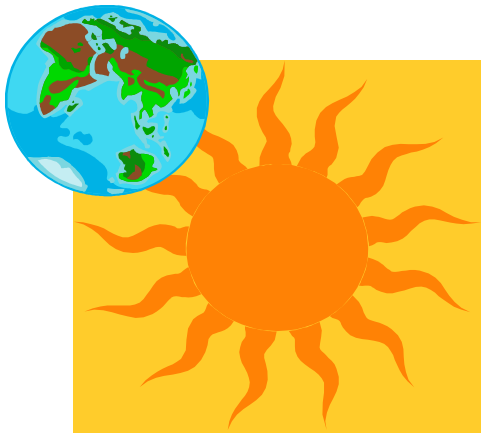
Ghana
Madagascar
Ethiopia
Botswana
Guinea
Kenya
Nigeria
Rwanda
Uganda
Zimbabwe

Angola
Burundi
Comoros
Lesotho
Malawi
Mozambique
Namibia
Rwanda
Seychelles
Swaziland
Tanzania
Uganda
Zambia

Estonia
Latvia
Lithuania
Macedonia
Kazakhstan

Cook Islands
Fiji
Kiribati
Papua New Guinea
Niue
Samoa
Solomon Is.
Tonga
Tuvalu
Vanuatu

World Climate Applications and Services Programme (WCASP)



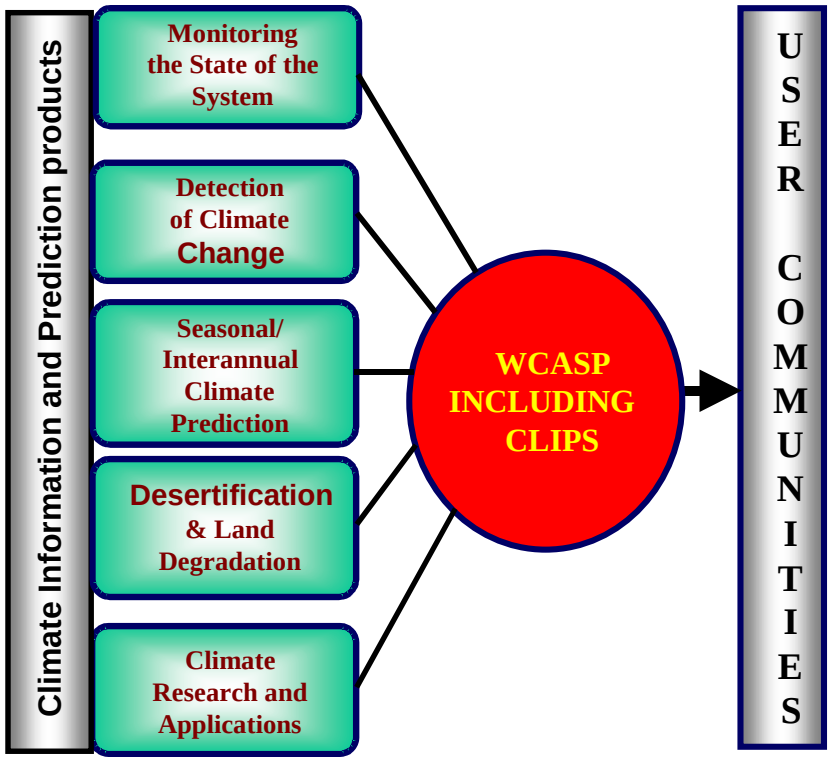
And the Climate Information and Prediction Services (CLIPS) Project

World Climate Applications and Services Programme (WCASP) & CLIPS

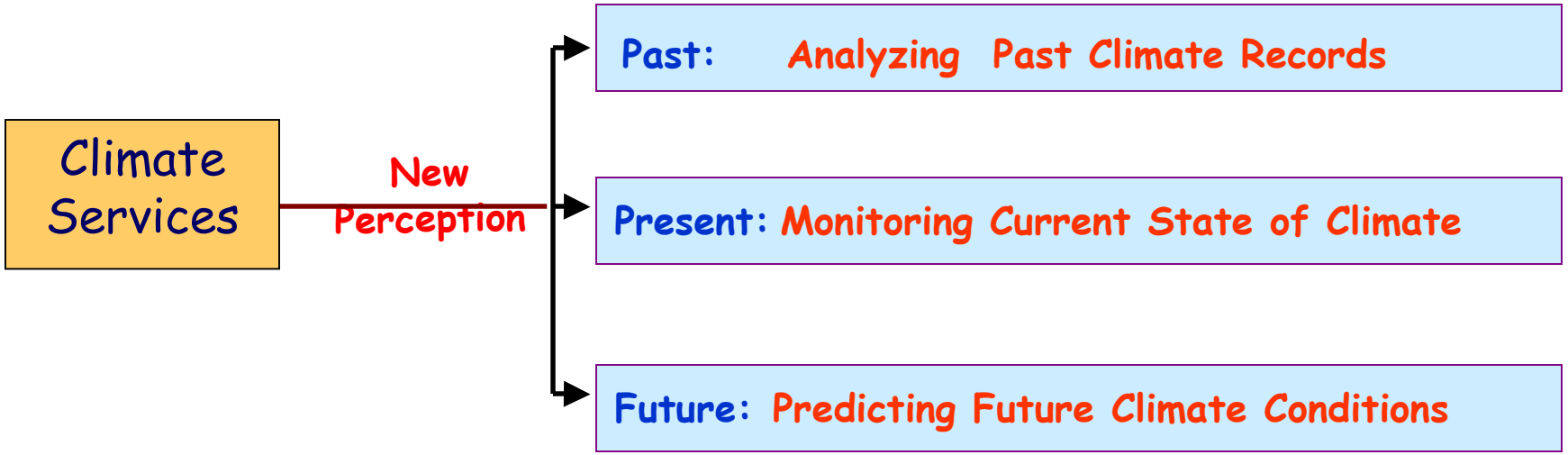
Primary objectives:

- to develop the capacity of the National Meteorological and Hydrological Services (NMHSs) to take advantage of recent advances in the science of climate and in the processing and dissemination of climate information, and
- to pass on the benefits of the improved climate services to the user community.

WCASP & CLIPS aim to provide an essential link between climate prediction/information and their applications:



CLIPS is an implementing project of the World Climate Applications Programme (WCASP)



The ultimate goal of the CLIPS Project is to develop climate services and their applications in various socio-economic sectors in all Member countries of WMO

Objectives of the CLIPS Project are to:

Develop the infrastructure for Seasonal to Interannual Prediction

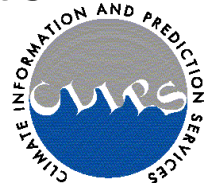
Develop and facilitate the concept of a global network of Regional Climate Centers (RCCs)

Promote the science and the application of Seasonal to Interannual Prediction products, and

Promote capacity building of producers and users of Seasonal to Interannual Prediction.

CLIPS *Activities*

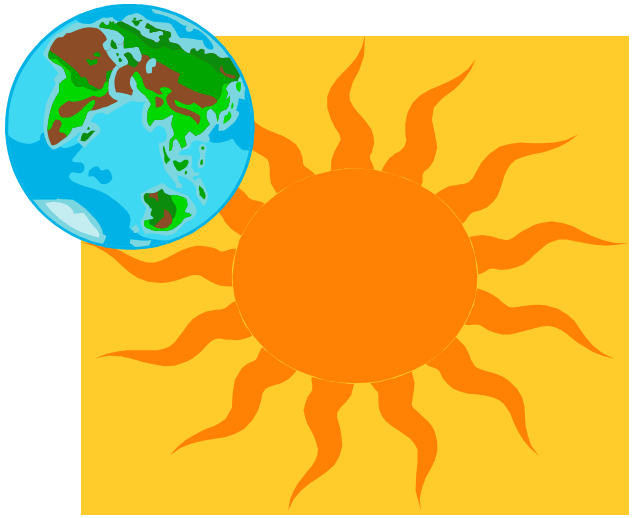
- Training and capacity building workshops and seminars for climate experts and users (e.g. Regional Climate Outlook Forums)
- Development of methodologies to assess the effects of climate, its variability and potential change on various socio-economic activities
- Demonstration / pilot projects
- Joint projects with with research programmes such as WCRP CLIVAR and AREP THORPEX
- Development of methods and techniques to support User's needs for climate information, knowledge and services



World Climate Applications and Services Programme

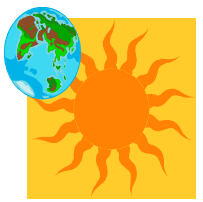
Applications of climate information and prediction services to support human activities and sustainable development:

- economic efficiency
- human health and well being
- food production, food security
- prudent use of water resources
- use of renewable energies
- sustainable tourism
- Living in the urban and built environment



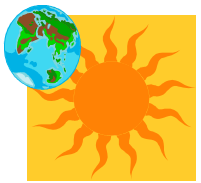
WCASP Long-term Objectives

- Development of climate services
  - services for national sustainable development
  - methods of adapting to, and mitigating, the adverse impacts of climate and its variations
- Increased awareness of potential benefits
  - particular emphasis on public safety and welfare
- Development of practical methods and techniques
  - including climate prediction products



Applications and Services Activities

- Climate and Health
  - Heat/Health Warning Systems
  - Climate Indices (UTCI)
  - Climate and Disease
- Climate and Energy
  - Use of renewable energy:
    - Wind
    - solar
  - Data, instrument needs
- Climate and Tourism
  - Impacts of Climate variability, change on tourism
  - Tourism impact on Climate
  - Climatotherapy
- Urban,Building Climatology
  - Effect of urbanization on historical climate data
  - Model development
  - Science curriculum



WCDMP & WCASP/CLIPS Support to the CCl

Four Open Programme Area Groups (OPAGs), each with Expert Teams and Rapporteurs, carry out the work of the Commission for Climatology:

- Climate Data and Data Management
- Monitoring and Analysis of Climate Variability and Change
- Climate Information and Prediction Services
- Climate Applications and Services

WMO COMMISSION FOR CLIMATOLOGY (CCl)

MANAGEMENT GROUP (MG)

Regional Representatives:
RA III: Luis Molion *(Brazil)*
RA V: Michael Coughlan *(Australia)*

President
Pierre Bessemoulin
(France)

Vice-president
Wang, Shourong
(China)

World Data Centres:
Aleksandr Sterin *(Russian Federation)*

OPAG 1
Climate Data and Data Management

Chair: *Raino Heino (Finland)*

Co-chair: *Peter Ambenje (Kenya)*

1.1 ET for Climate Data Management including Metadata
Radim Tolasz (Czech Republic)

1.2: ET on Observing Requirements and Standards for Climate
William Wright (Australia)

1.3: ET on Rescue, Preservation and Digitization of Climate Records
Joe Elms (USA)

OPAG 2
Monitoring and Analysis of Climate Variability and Change

Chair: *Thomas Peterson (USA)*

Co-chair: Manola Brunet India (Spain)

2.1: CCl/CLIVAR/JCOMM ET on Climate Change Detection and Indices
CCl: Albert KleinTank (Netherlands)
CLIVAR: TBD

2.2: ET on Climate Monitoring including the use of Satellite and Marine Data and Products
Zhang, Zuqiang (China)

2.3: Rapporteur on Climate Extremes
Randall Cerveny (USA)

OPAG 3
Climate Information and Prediction Services (CLIPS)

Chair: *Abdallah Mokssit (Morocco)*

Co-chair: *José Luis Santos (Ecuador)*

3.1: ET on Research Needs for Intraseasonal, Seasonal & Interannual Prediction
Jean-Pierre Ceron (France)

3.2: ET on CLIPS Operations, Verification and Applications Services
Operations: Philbert Tibaijuka (Tanzania)
Verification: Simon Mason (USA)
User Liaison: Jaakko Helminen (Finland)

3.3: ET on El Niño and La Niña
Luc Maitrepierre (New Caledonia)

3.4: Rapporteur on Climate And Water
Nakaegawa Tosiyuki (Japan)

3.5: Rapporteur on Climate and Agrometeorology
Roger Stone (Australia)

OPAG 4
Climate Applications and Services

Chair: *Dong, Wenjie (China)*

Co-chair: *Muhammed Kadi (Algeria)*

4.1: ET on Climate and Health
Glenn McGregor (UK)

4.2: ET on Climate and Energy
TBD

4.3: ET on Climate and Tourism
Dan Scott (Canada)

4.4: ET on Urban and Building Climatology
Sue Grimmond (UK)

Reporting to the President or Management Group:

5.1: Rapporteur on Climate–related Hazards *(Member of the MG,TBD)*

5.2: ET on the Guide to Climatological Practices *(Ned Guttman, USA)*

5.3: Gender Focal Point *(Juliana Ukeje, Nigeria)*

5.4: Rapporteur on GEOSS *(Stephan Roesner, Germany)*

7.* Implementation/Coordination Team (ICT)*: CCl VP; Co-Chairs of OPAGs 1, 2, 3, 4; Chairpersons of the Working Groups on Climate-related Matters for RAs I, II, III, IV, V and VI.

Reporting to the OPAG Chairs:

6. CCl Experts serving on teams of other Technical Commissions

OPAG: Open Programme Area Group
ET: Expert Team

Agricultural Meteorology Programme (AgMP)

A Fundamental Change is Required in the Way Weather and Climate are Viewed

Traditionally, agricultural ministries and the research community viewed meteorological services as providers of data on weather and climate as and when they are needed.

Many treat weather and climate as hazards that must be dealt with.

Climate variability is referred to from the perspective of its negative impacts.

Today agricultural research community's challenge is to balance continuing need for increased productivity with the new and growing concerns about climate change, climate variability and associated environmental impacts.

A Fundamental Change is Required in the Way Weather and Climate are Viewed (contd.)

There is a need for a greater understanding of weather and climate including the nature of inherent variability and methods of coping with the projected impacts of climate change.

There is a lot to be gained from looking at climate not only as a hazard, but also as a “resource”.

Resources must be known, assessed in quantitative terms and properly managed if they are to be used sustainably, and climate is no exception.

Hence it is clear that a fundamental change is required in the way weather and climate are viewed.

How can Meteorology Help the Agricultural Community

Provision of the essential support services to make crucial tactical decisions during crop growing season

Delivering relevant and appropriate early warnings of extreme events to reduce their impact on agriculture

Developing adaptation strategies to cope with projected climate change impacts on agriculture and forestry

Purpose of the Agricultural Meteorology programme (AgMP)

The programme deals with applications to agriculture of both climate information which is used mainly for strategic planning purposes, and recent weather data and weather forecasts used mostly in day-to-day agricultural operations.

Main long-term objectives

- To promote environmentally sustainable, economically viable and high quality agricultural production by strengthening Members' indigenous capabilities to provide relevant meteorological services to agricultural and other related sectors

- To foster a better understanding, by farmers and other end-users in the agricultural, forestry and related sectors, of the value and use of meteorological information in planning and operational activities.

AgMP *Activities*

Training courses, international workshops, roving seminars

Technical Cooperation projects (WMO, UNDP, bilateral, etc.)

Expert Group meetings

Guide to Agrometeorological Practices

World AgroMeteorological Information Service (WAMIS)

Cross-cutting activities with CLIPS, other Commissions (Chy, CAS, CIMO, CCl) and international agencies

Development of methodologies and techniques for data management and application

Open Programme Area Groups and Expert Teams of CAgM

- At the thirteenth session of the Commission for Agricultural Meteorology held in Ljubljana, Slovenia from 10 to 18 October 2002, three Open Programme Area Groups (OPAGs) were appointed
- Under each OPAG Implementation/Coordination Teams and Expert Teams were appointed to carry out the work of the Commission between the thirteenth and the fourteenth session to be held in 2006.

Open Programme Area Groups (OPAGs) of CAgM

1. Agrometeorological Services for Agricultural Production

2. Support Systems for Agrometeorological Services

3. Climate Change/Variability and Natural Disasters in Agriculture

Agrometeorological Services for Agricultural Production

- Provision of guidance on issues such as strengthening relevant observation and information networks and dissemination of information through advisories and warnings

- Provision of guidance on agrometeorological aspects of land and water management in agriculture

- One of the major activities in this project is on weather, climate and farmers where a bottom-up approach of the full involvement of farmers is envisaged to ensure that the agrometeorological methods and procedures developed and used will adequately respond to the appropriate needs of the farmers.

Support Systems for Agrometeorological Services

- Emphasis is placed on provision of training, education and extension support systems for the provision of improved agrometeorological services through technology transfer, better methods, procedures and techniques for disseminating agrometeorological information.

- Expert group meetings and organization of training activities on applications of geographical information systems, agroecological zoning and crop modelling

- Guidance and advice is provided to Members on validation and application of crop simulation models and other research results at the national and regional level.

Climate Change/Variability and Natural Disasters in Agriculture

- Emphasis placed on promoting the more active use of seasonal to inter-annual climate forecasts in agricultural planning and operations in active collaboration with the CLIPS programme.

- Better methods, procedures and techniques are promoted for the prevention and mitigation of the impacts of droughts, floods and other extreme events in agriculture and forestry and on awareness and training for disaster mitigation and climate disaster prediction.

- Relevant guidance and recommendations is provided on measures to help reduce the contributions of agriculture to global warming