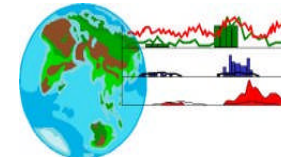
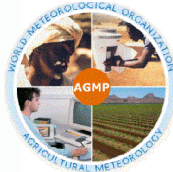
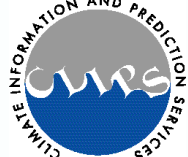




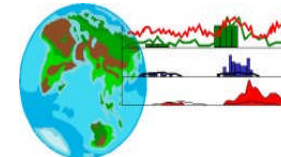
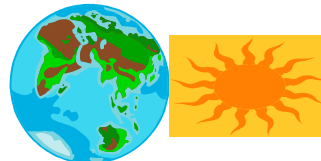
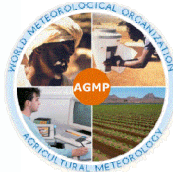
Outline

1. WMO: a brief overview
2. Role of the WMO in International climate activities - World Climate Programme (WCP)
3. World Climate Application and Services Programme (WCASP)/CLIPS
4. Concluding Remarks



1. The World Meteorological Organization (WMO)

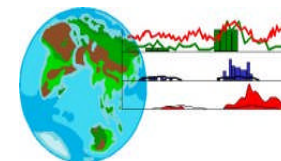
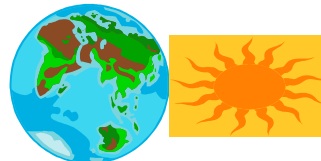
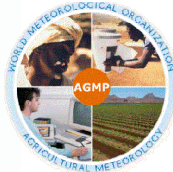
- Established in 1950 as a Specialized Agency of the United Nations.
- It is the UN System's Authoritative Voice on Weather, Climate and Water.
- Selected Achievements; major contributor to the establishment of the WCP, IPCC/UNFCCC, TOGA/CORE Programme, GCOS, GEOSS/GEO



WMO Vision

“To provide world leadership in expertise and international co-operation in weather, climate, hydrology and water resources, and related environmental issues, and thereby to contribute to the safety and well being of people throughout the world and to the economic benefit of all nations.”

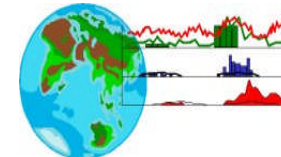
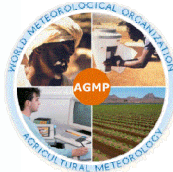
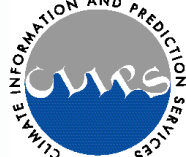
WMO 6LTP, 2004-2011



WMO Sixth Long Term Plan (6LTP)

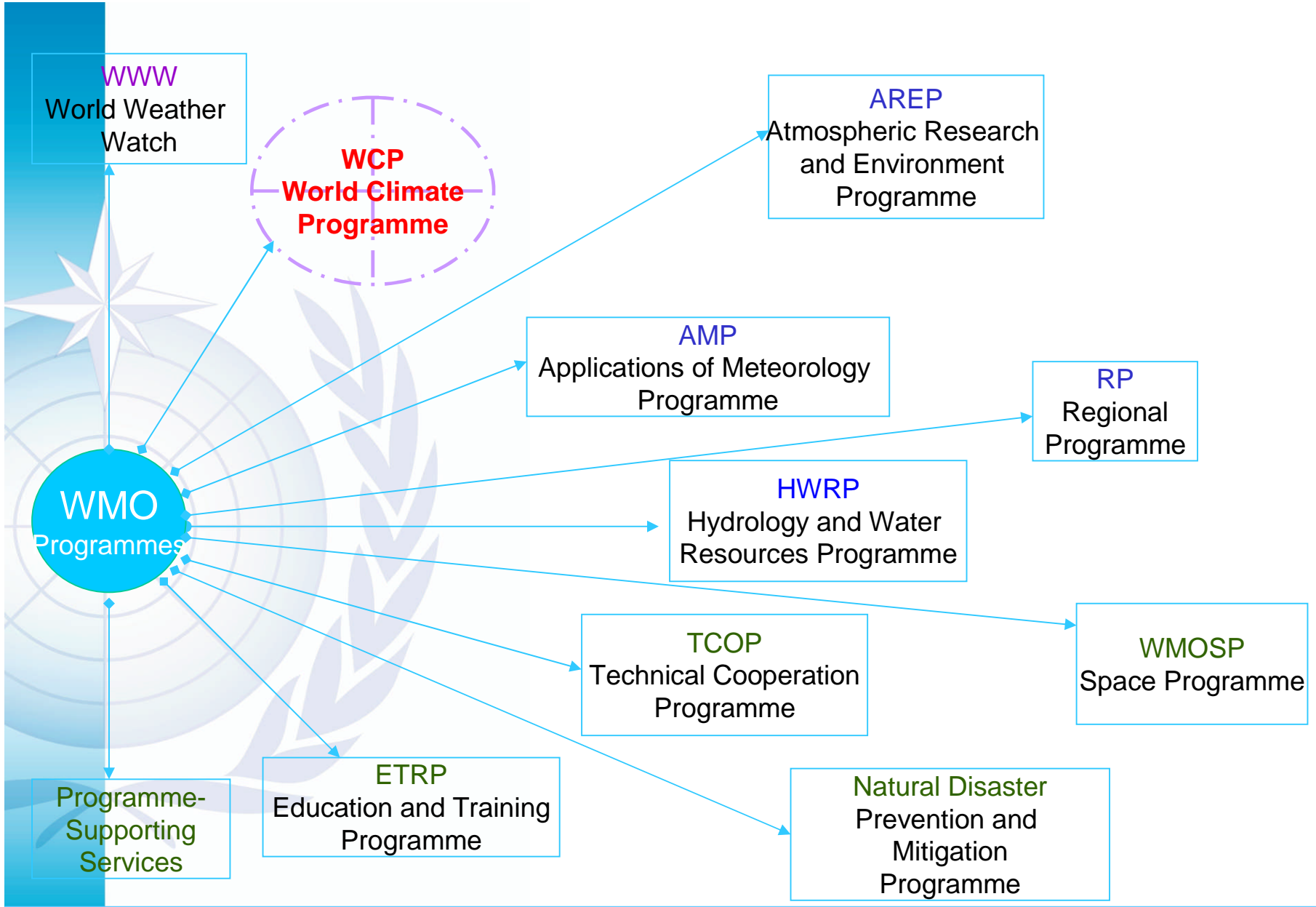
“...provides a consolidated set of desired outcomes, strategies and associated goals for 2004-2011 as WMO seeks to contribute proactively to the protection of life and property, to safeguarding the environment and to sustainable development.”

WMO 6LTP, 2004-2011.

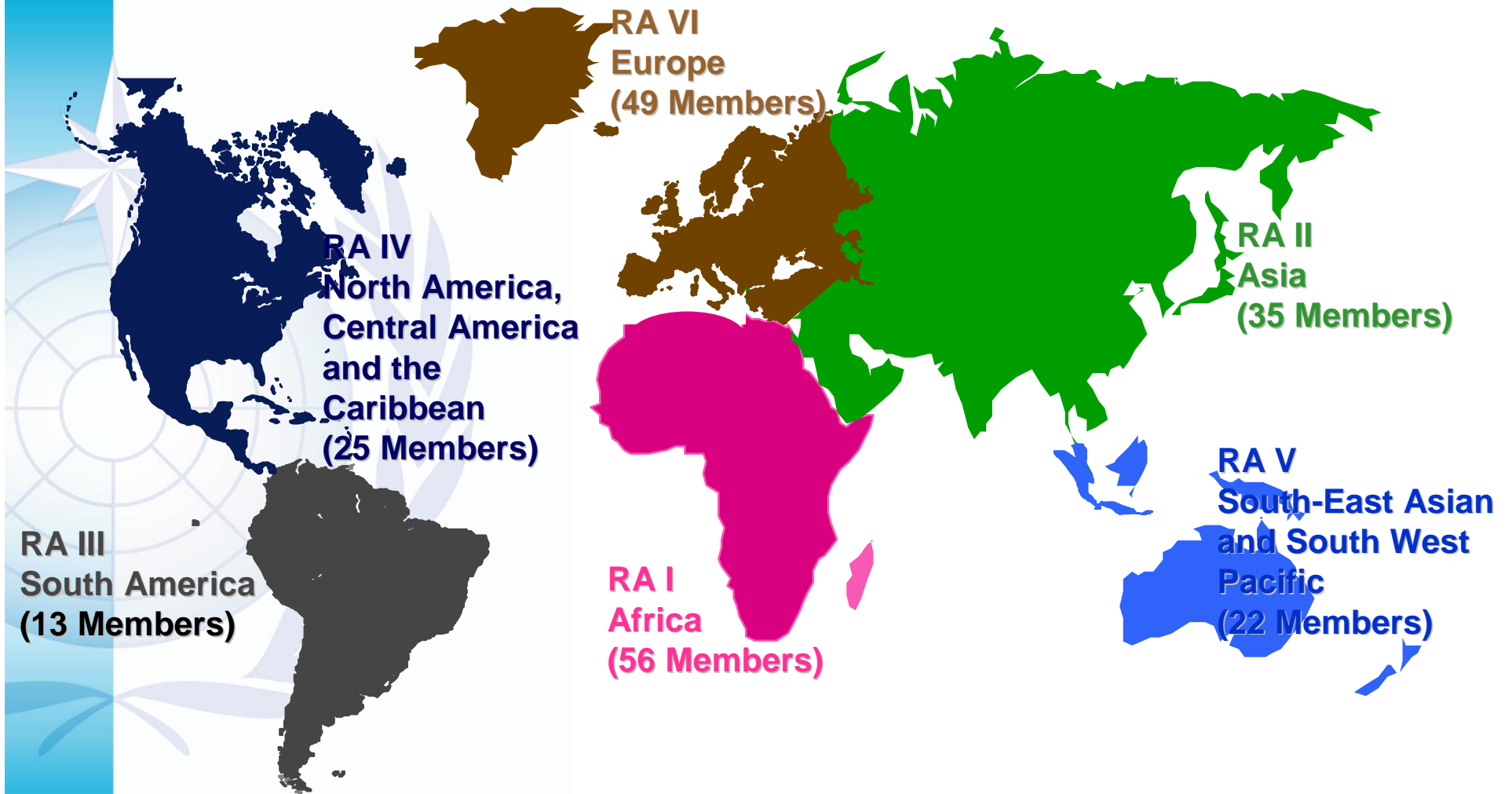


WMO's desired outcomes

1. Improved protection of life and property
2. Increased safety on land, at sea and in the air
3. Enhanced quality of life
4. Sustained economic growth
5. Protection of the environment
6. Enhanced WMO effectiveness.

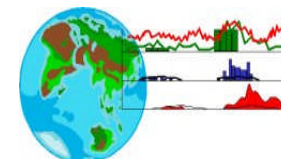
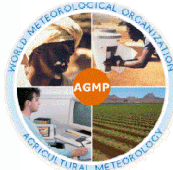


WMO's Regional Associations (RAs)



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2. World Climate Programme (WCP)– *Purpose and Scope*

“To provide an authoritative international scientific voice on climate (variability) and climate change... assist countries in the application of climate information and knowledge to national sustainable development...”

This will be achieved through the implementation of Agenda 21 and associated instrument (e.g. MDGs) in order to achieve maximum possible benefit for national economies and social welfare.”

WMO 6LTP, 2004-2011.

Seamless Forecasts

Climate Change: change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural variability observed over comparable time periods (UNFCCC).

Forecast Uncertainty

GHG Emissions & GHG conc

Years

Seasons

Months

2 Week

1 Week

Days

Hours

Minutes

Boundary Conditions

Initial Conditions

Forecast Lead Time

Scenarios

Outlook

Prediction

Guidance

Threats Assessments

Forecasts

Watches

Warnings & Alert Coordination

Benefits

State/Local Planning

Environment

Protection of Life & Property

Flood Mitigation & Navigation

Space Operation

Transportation

Fire Weather

Hydropower

Agriculture

Reservoir Control

Recreation

Ecosystem

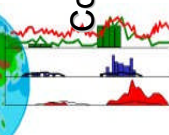
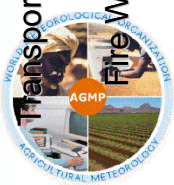
Energy

Health

Commerce

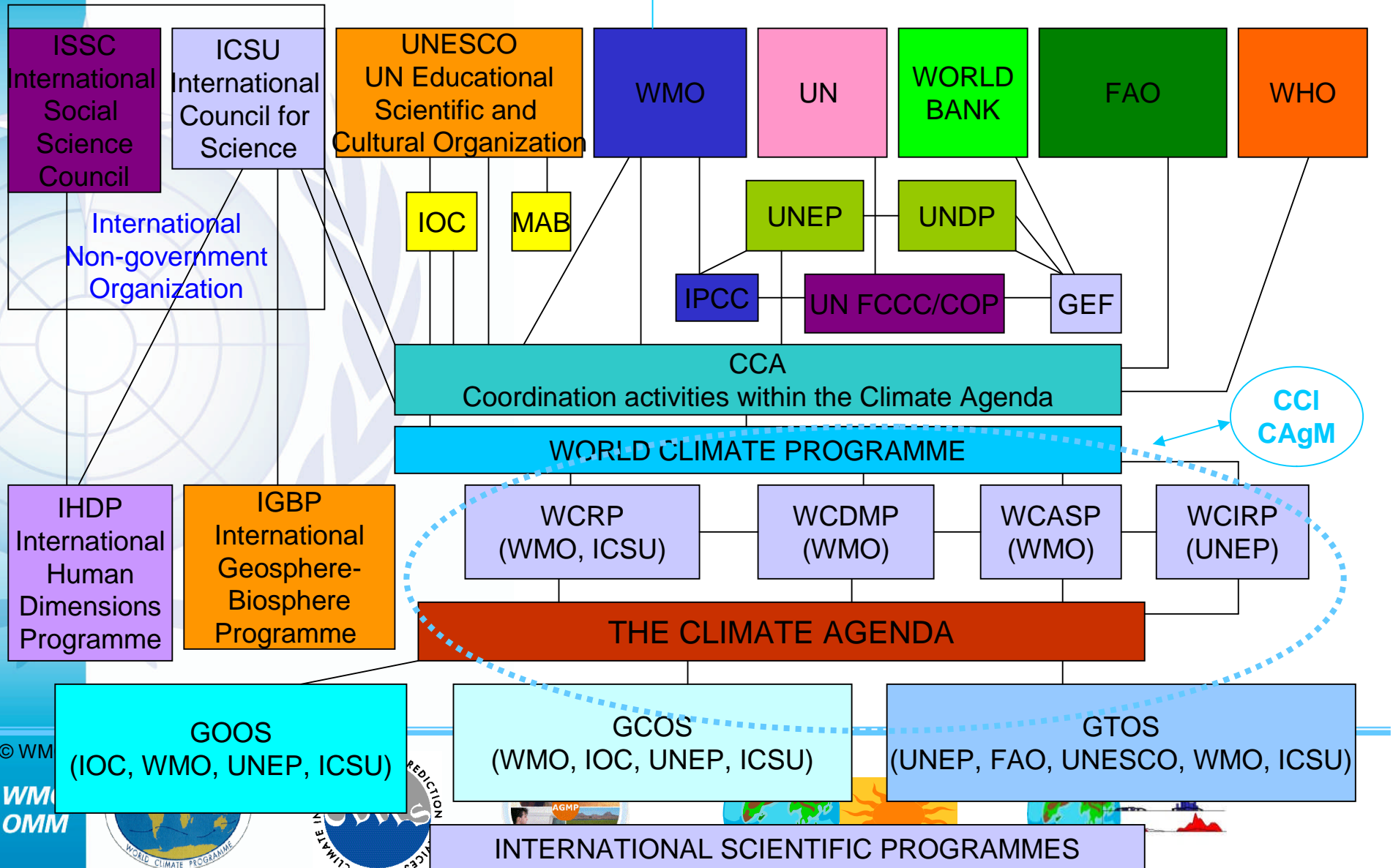
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WMO OMM



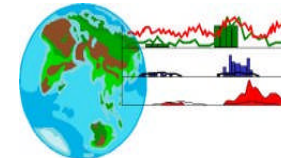
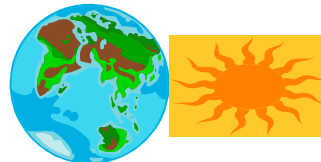
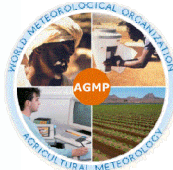
WCP within International Climate Activities

Global Earth Observation Systems of System (GEOSS) –
Group of Earth Observation (GEO)



WCP Strategies

1. *Support delivery of accurate and reliable warnings of severe climatic events*
2. *Provision of beneficial climate services*
3. *Enhanced WMO's role as the UN authoritative voice on the state and behavior of the climate*
4. *Provides information on the socio-economic benefits of understanding the climate*
5. *Understanding and modeling of the processes that affect the climate*
6. *Supports development of climate observations*
7. *Ensure effective international partnerships.*



WCP & Climate Agenda

T1: New Frontiers in climate science & prediction

T2: Climate Services for Sustainable Development

T3: Studies of climate impact assessments & response strategies to reduce vulnerability

T4: Dedicated observations of the climate system

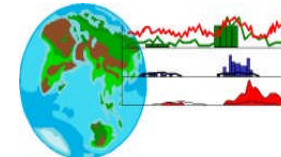
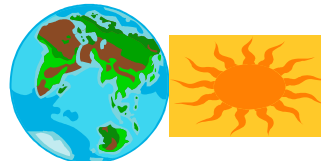
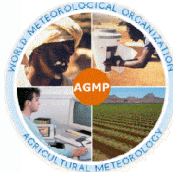
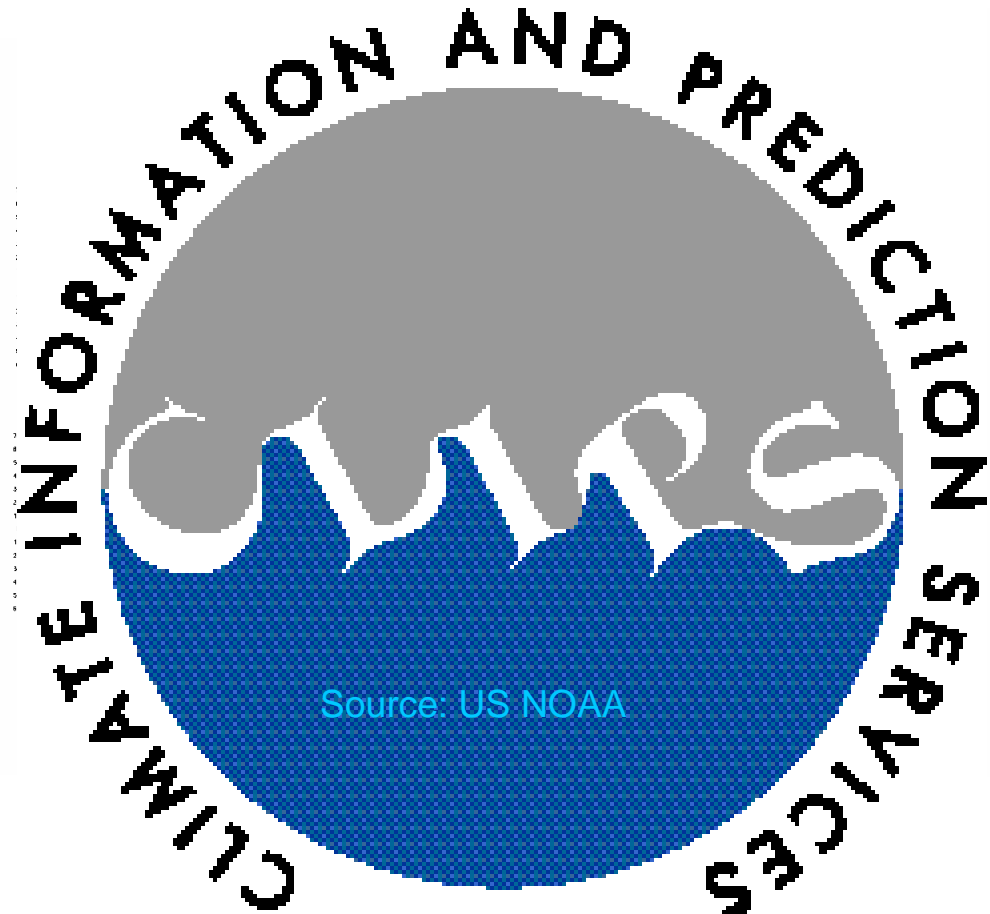
Overall objectives of the WCP are formulated to ensure that the above thrusts are pursued.

WCP Objectives

1. Facilitate effective collection and management of climate data and the monitoring of the global climate system, including the detection and assessment of climate variability and change
2. Foster the effective application of climate knowledge and information for the benefit of society
3. Assess the impact of climate variability and change on ecosystems, socio-economic activities
4. Improved understanding of climate processes for determining the predictability of climate and identifying the extent of human influence on climate and developing the capability for climate prediction

3. WMO's WCASP & CLIPS Project

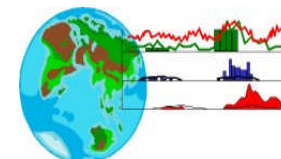
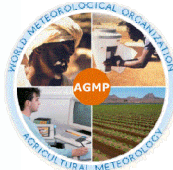
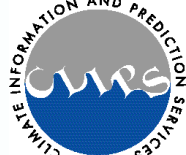
1. Tropical Ocean and Atmosphere Programme (TOGA/CORE) - TAO
2. ENSO prediction
3. Seasonal to Inter-annual Predictions (SIPs) and Applications



WCASP & CLIPS Purpose

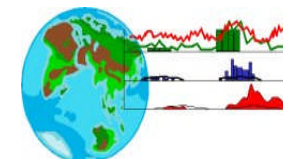
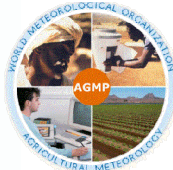
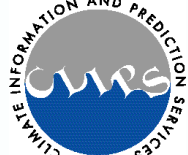
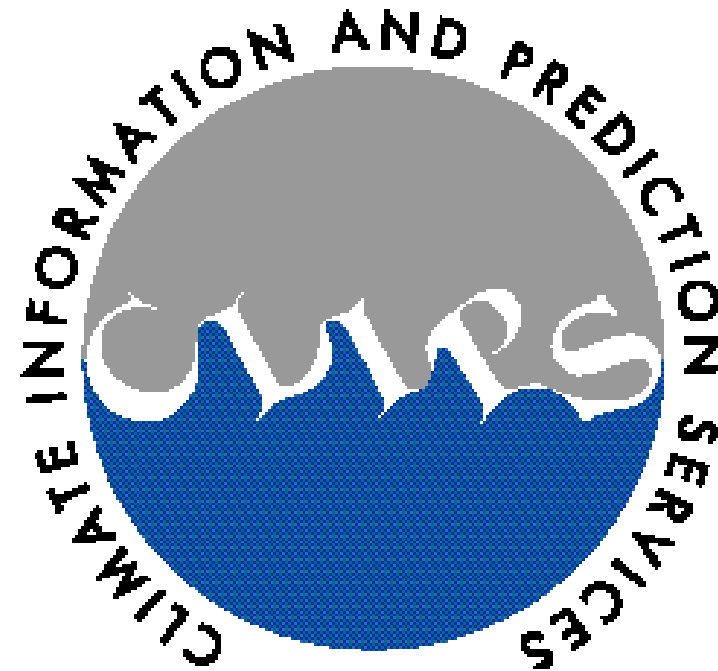
To assist WMO members and all stakeholders to apply Climate Information and Prediction Services (CLIPS) in their decision making processes to maintain public safety, health and socio-economic welfare, to alleviate poverty and to promote sustainable development.

CLIPS is the vehicle for much of the WCASP development and implementation.



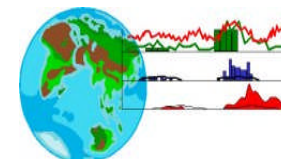
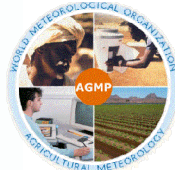
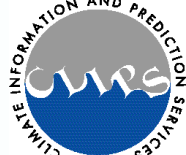
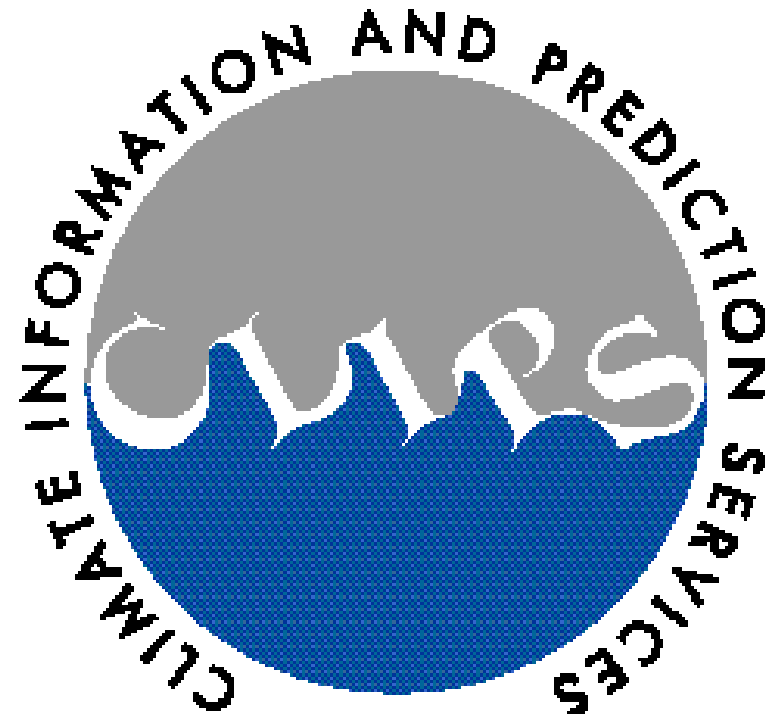
WASAP & CLIPS' Objectives

1. Establish an international project to coordinate development and applications of Seasonal to Inter-annual Predictions (SIPs)
2. To investigate and facilitate the establishment of Regional Climate Centers (RCC)
3. To promote the science and applications of SIPs – Education, Training, Public Awareness and Capacity Building



CLIPS' main activities

1. Enhance capacity of NMHSs in SIPs and their applications
2. Development of guidelines and methodologies on SIPs and applications on climate sensitive sectors and systems
3. Provide users with new CLIPS in light of new scientific understanding and establish links between providers of and users of SIPs
4. Coordinate joint international research with WCRP and other International Climate Programmes

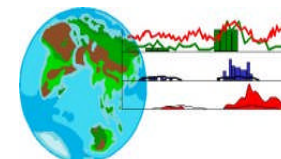
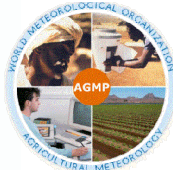
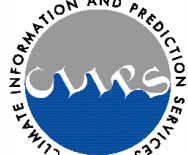


The Global Climate Prediction Centers



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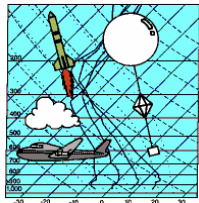
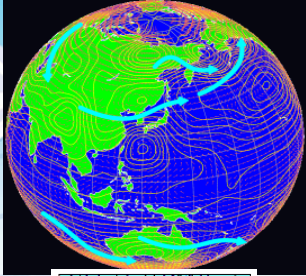


CLIPS - Regional Climate Outlooks Forums (RCOFs)

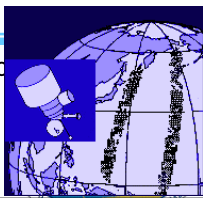
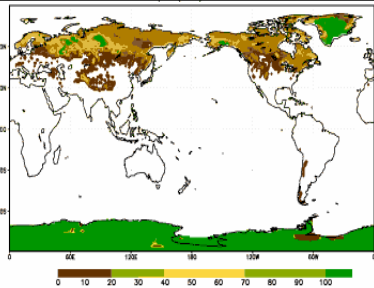
- A component of CLIPS
- First established in 1996: Meeting in Victoria Falls, Zimbabwe.
- Regional mechanism for the formulation and dissemination of climate forecasts/predictions/outlooks
- Bring together providers of and users of SIPs.

The Regional Climate Outlook Forum Process

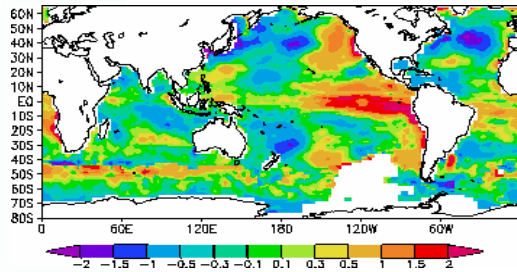
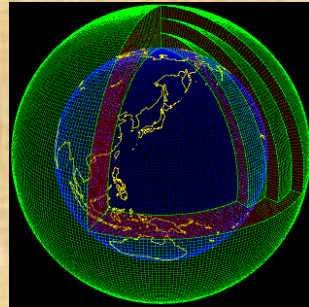
**The Pre-Forum
(4-6 wks)**



Initial Predictors



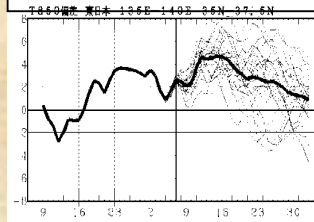
**The Forum Proper
(1 wk)**



- Latest information on the climate system
- Global SST anomaly
- El Nino Prediction Model
- etc

Guidance

Ensemble Product



Verification

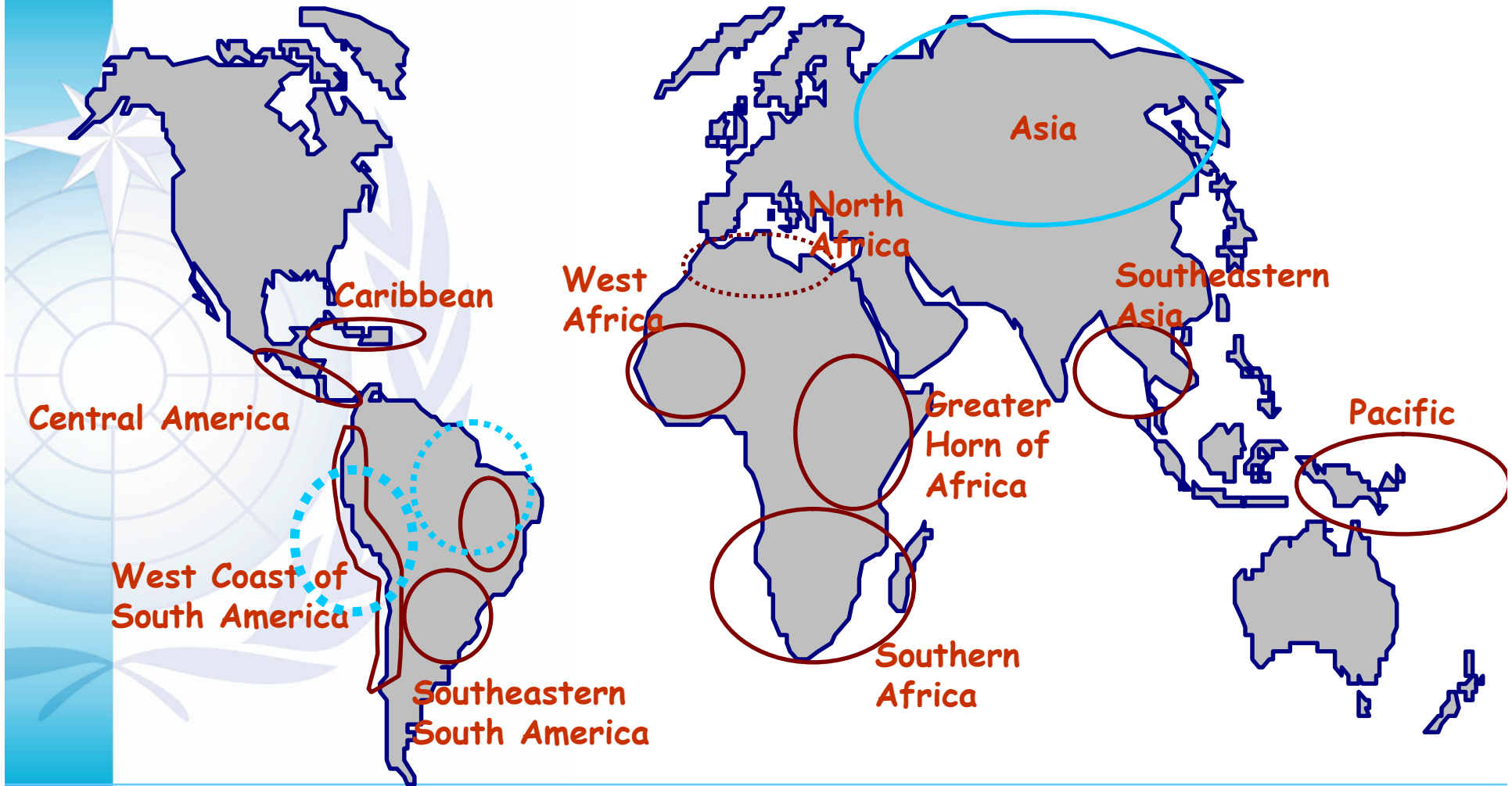
Seasonal Forecast Experiments (Hind-cast)

Climate Forecasters



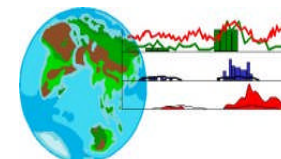
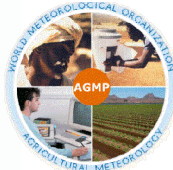
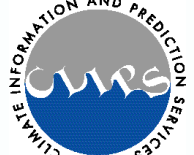
**Dissemination
NMHSs, etc.**

CLIPS - RCOFs



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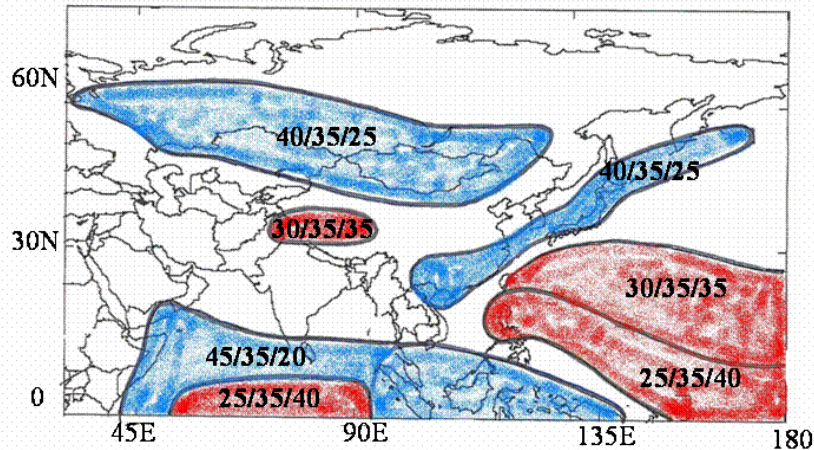
CLIPS - RCOFs

- o Regular Forums in some regions where NMHSs meet to develop regional consensus on SIPs.
- o More than 35 forums held throughout the world.



First Climate Outlook Forum for RA II, Asia, Beijing, China, 7-9 April 2005.

Seasonal Predictions for the summer of 2005: Asia



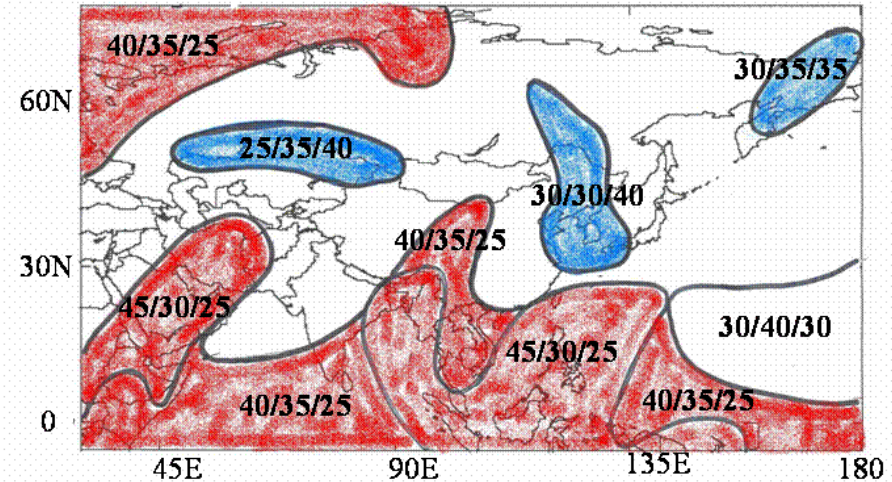
Precipitation Prediction for June to August of 2005
(Probability: Above normal/Neutral/Below normal)

Precipitation:

- **MORE THAN NORMAL:** the Yangtze River Basin, Indochina Peninsula, northern Central Asia, and southern Japan
- **LESS THAN NORMAL:** NE China, Korean Peninsula, Northern Japan, and India

Air Temperature:

- **HIGHER THAN NORMAL:** the north of 40N latitude and tropical areas
- **LOWER THAN NORMAL:** central regions (e.g Eastern China)



Air Temperature Prediction for June to August of 2005
(Probability: Above normal/Neutral/Below normal)

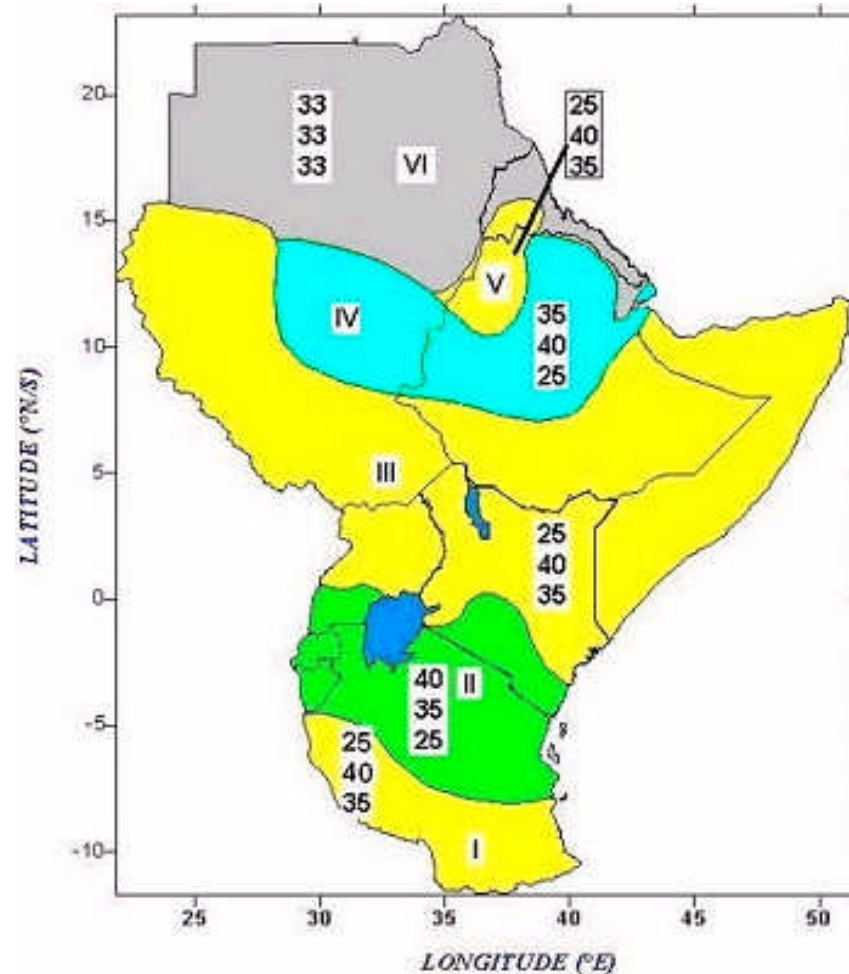
Typhoons NW Pacific 2005:

- 27 to 29 (around normal: CN = 28)
- No of typhoons landing in China is predicted to be 6 to 8 (near normal: CN =7)

Seasonal Predictions for the summer of 2005: GHA

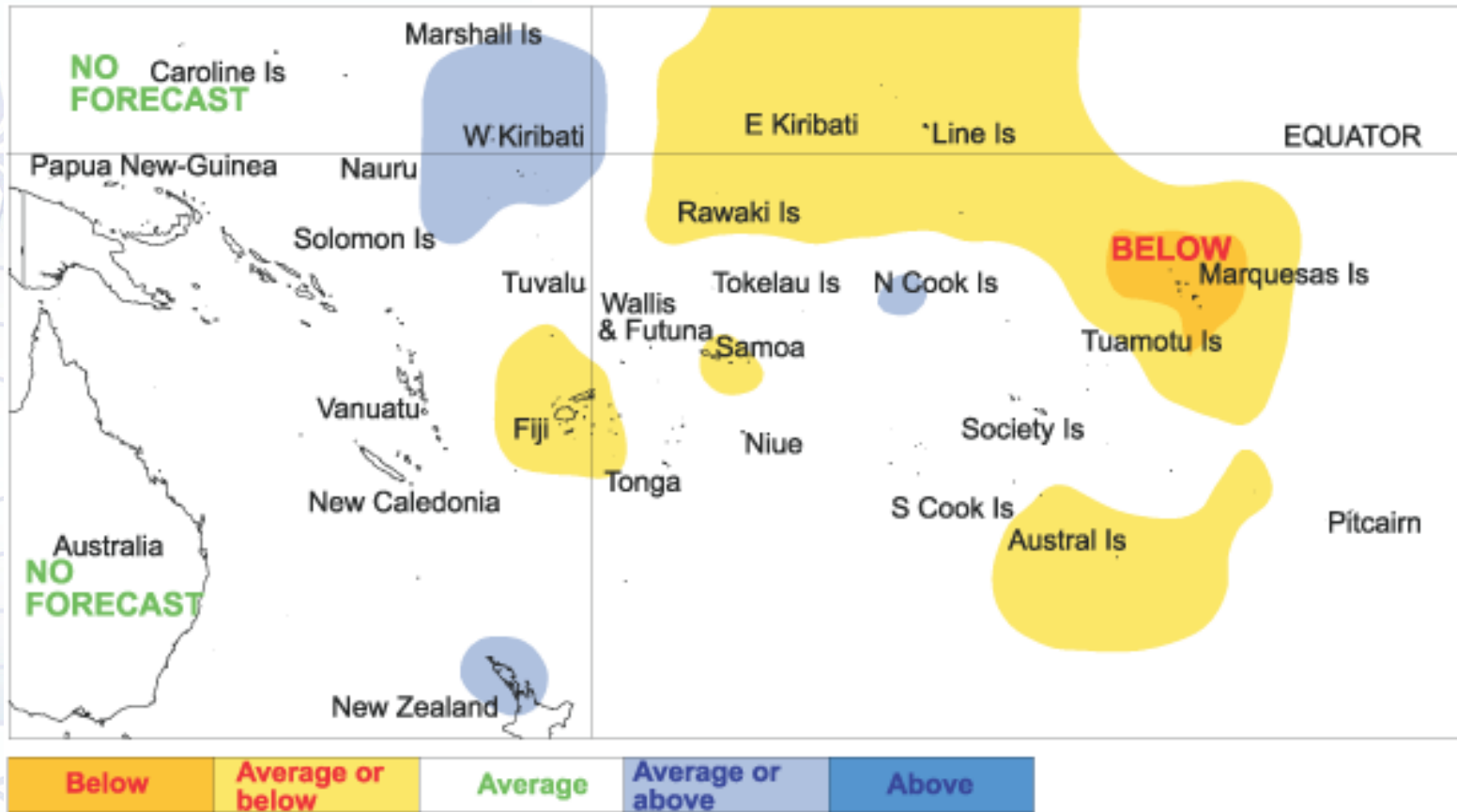
OUTLOOK (MAM):

- **ZI: NBN** SSW Tanzania
- **ZII: ANN** CN Tanzania; Rwanda; Burundi; S.Uganda, CS Kenya
- **ZIII: NBN** Kenya, CN Uganda, SW Sudan, SE Ethiopia and Somalia
- **ZIV: NAN** E Djibouti, W Ethiopia and parts of eastern Sudan
- **ZV: NBN** NW Ethiopia, SW Eritrea
- **ZVI: Climatology**, N Sudan, much of Eritrea and W Djibouti



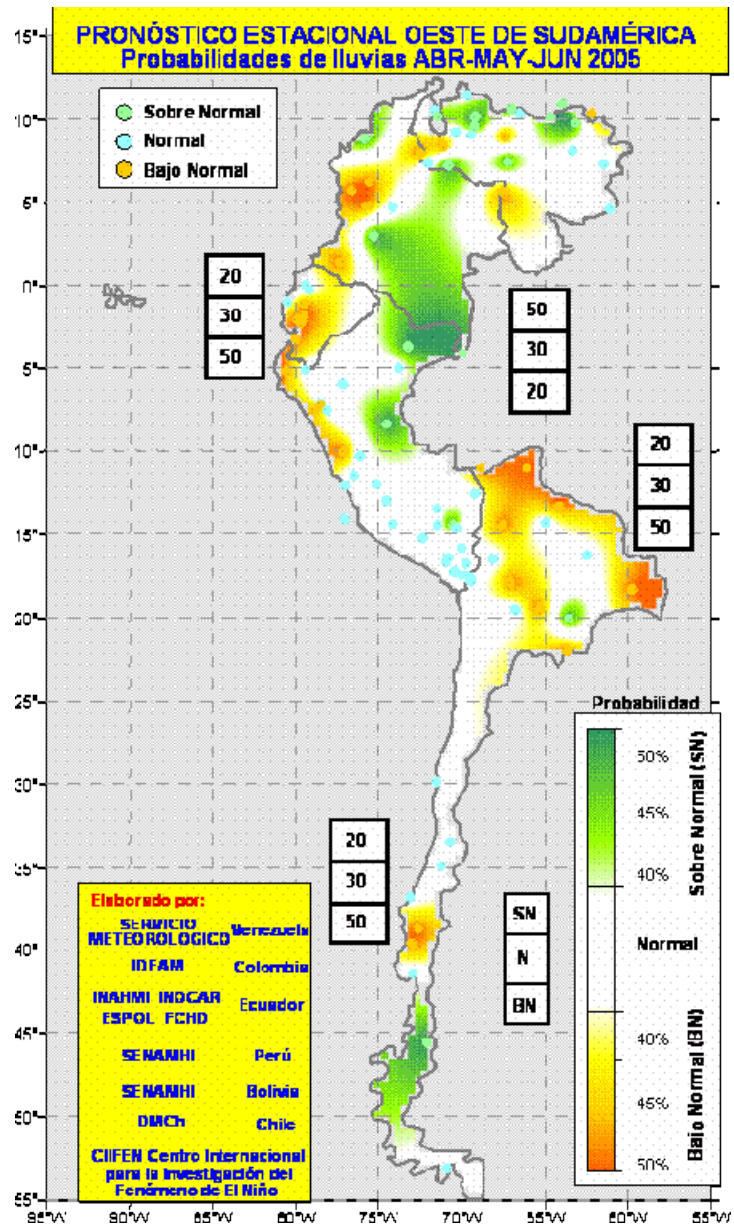
Source: 15th RCOF GHA, 2 – 4 March, 2005, Mombasa, Kenya

Selected Seasonal Predictions for the summer (winter) of 2005: The Pacific Islands



Source: Island Climate Update (ICU), NIWA, NZ

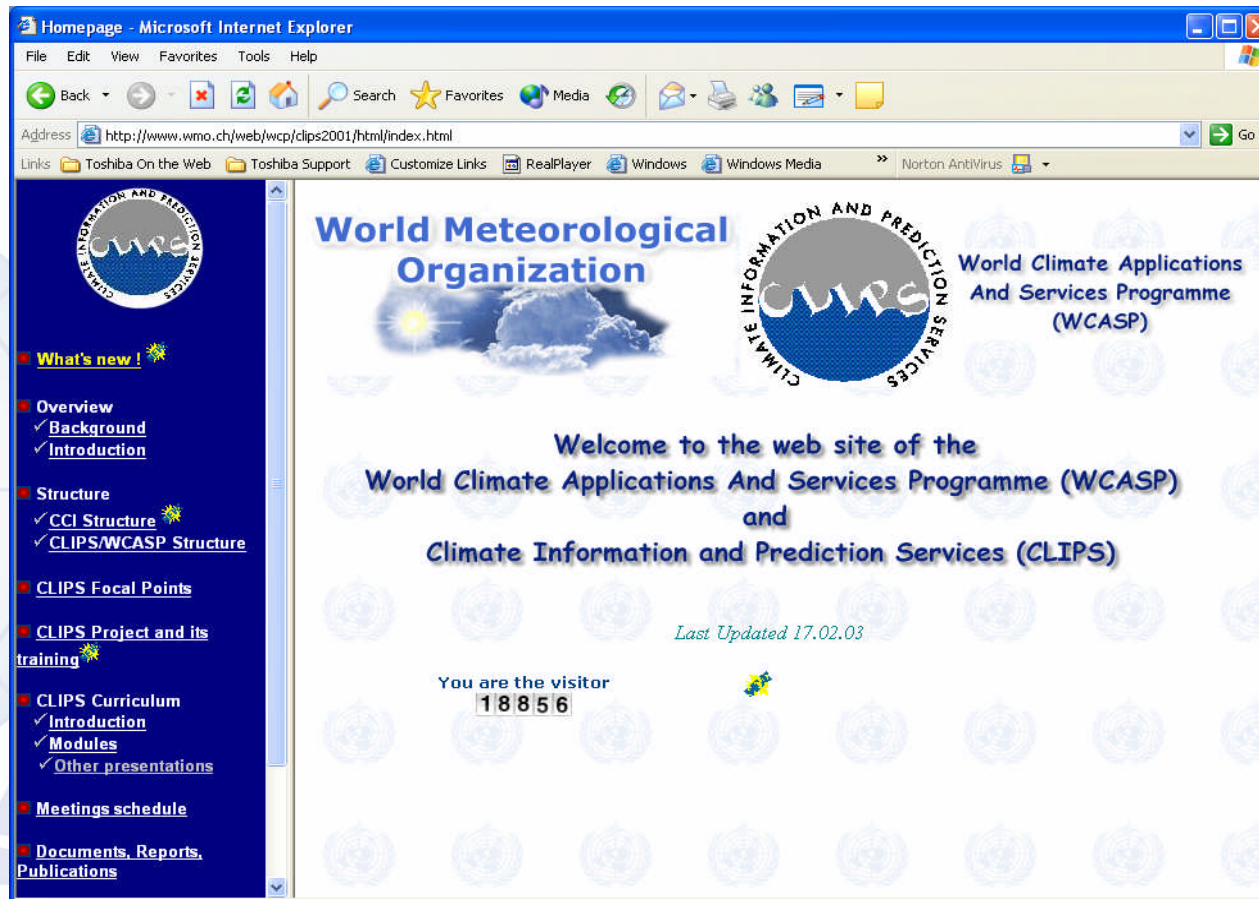
Western South America (AMJ 2005)



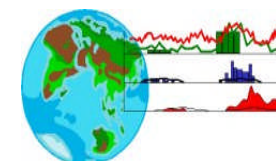
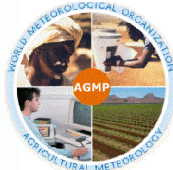
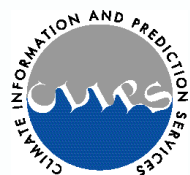
CLIPS – RCOFs Achievements

- Linking science and policy making
- Increased demand for CLIPS
 - ✓ NMHSs;
 - ✓ Other WMO & UN Programmes;
 - ✓ Multi-stakeholders
- Increased awareness and utilization of CLIPS to safeguard socio-economic well-being

CLIPS' web site



<http://www.wmo.ch/web/wcp/clips2001/html/index.html>



Concluding Remarks

- WMO will continue to provide an authoritative international scientific voice (policy relevant advice) on climate variability and climate change
- WMO will continue to assist countries in the application of climate information and knowledge to national sustainable development. This will be achieved through the implementation of Agenda 21 and associated instrument (e.g. MDGs) in order to achieve maximum possible benefit for national economies and social welfare.
- WMO will continue to enhance interagency collaboration for effective SIPs and climate applications and links to other international programmes such as GCOS, WCRP (COPES), GEO/GEOSS

For further information on the work of WMO, see 'Sixth WMO Long-Term Plan 2004-2011' WMO-No. 962, 2004, available online at www.wmo.int

