



World Meteorological Organization

Working together in weather, climate and water

# Agricultural Meteorology in WMO

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Climate and Water Department



# Outline

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- Overview of WMO
- Overview of Agricultural Meteorology in WMO
- Projects
- Training
- Workshops
- Guide to Agricultural Meteorological Practices
- Publications



# World Meteorological Organization

- Established in **1950** as a Specialized Agency of the United Nations (IMO -1873)
- **189 Member** states and territories.
- It is the UN System's Authoritative Voice on the state and behaviour of the Earth's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources.
- Climate-related initiatives: Major contributor to the establishment of the WCP, WCRP, **IPCC**, **UNFCCC**, TOGA/COARE, GCOS, GEOS/GEO



# WMO Objectives

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- To produce more **accurate, timely and reliable forecasts** and warnings of weather, climate, water and related environmental elements;
- To **improve the delivery** of weather, climate, water and related environmental information and services to the public, governments and other users;
- To **provide scientific and technical expertise** and advice in **support of policy- and decision-making** and implementation of the agreed international development goals and multilateral agreements.



# WMO Structure

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- 10 major scientific and technical programmes,
- 8 Technical Commissions advise and guide the activities of the programmes,
- 6 Regional Associations involved in implementation



# WMO Technical Commissions

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- Commission for Aeronautical Meteorology (CAeM)
- **Commission for Agricultural Meteorology (CAgM)**
- Commission for Atmospheric Sciences (CAS)
- Commission for Basic Systems (CBS)
- Commission for Climatology (CCI)
- Commission for Hydrology (CHy)
- Commission for Instruments and Methods of Observation (CIMO)
- Joint WMO-IOC Commission for Oceanography and Marine Meteorology (JCOMM)



# General Terms of Reference

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WMO provides guidance in each discipline by:

- **studying and reviewing** the available science and technology;
- proposes **international standards** for methods, procedures;
- provides a **forum** for the examination and resolution of relevant scientific and technical issues;
- **promotes the training** and the transfer of knowledge and methodologies, including the results of research, between WMO Members; and
- **promotes international cooperation** and maintains close cooperation in scientific and technical matters with other international organizations.



# Commission for Agricultural Meteorology

- Applications of meteorology to agricultural cropping systems, forestry, fisheries, and agricultural land use and livestock management
- Development of agromet services of Members by transfer of knowledge and methodology and by providing advice on various subjects;
- Methods, procedures and techniques for the provision of meteorological services to agriculture (all sectors);
- Formulation of data requirements for agricultural purposes;
- Introduction of effective methods for disseminating agromet information, advice and warnings to agriculture by mass media;
- Meteorological aspects of drought and desertification.



# Current Themes

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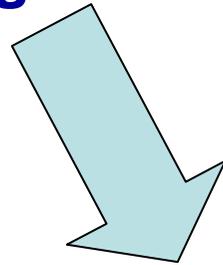
- **Agrometeorological Services for Agricultural Production**  
(i.e. products, bulletins, analyses)
- **Support Systems for Agrometeorological Services**  
(i.e. tools – GIS, remote sensing, models, etc)
- **Impacts (Climate Change / Variability)**



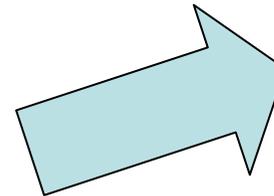
# Project Development

**Meeting**

**Recommendations  
or Brainstorming**



**Project  
Proposals to  
Funding  
Organizations**



**Project  
Accepted  
and  
Implemented**



# Inter-Regional Workshop on Improving Agrometeorological Bulletins

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- Inter-Regional Workshop on Improving Agrometeorological Bulletins, Bridgetown, Barbados (Oct 2001).
- Attended by 25 experts from 21 countries.
- Participants developed the concept of a centralized web server for agrometeorological products.



Caribbean  
Institute  
for Meteorology  
and Hydrology

# Improving Agrometeorological Bulletins



## Proceedings of the Inter-Regional Workshop

15-19 October 2001  
Bridgetown, Barbados



AGM-5

World Meteorological Organization

WMO/TD No. 1108



# WAMIS – [www.wamis.org](http://www.wamis.org)

- WAMIS helps members to disseminate and improve their agrometeorological products. Dedicated web server allows countries to place their agromet. bulletins and advisories on near real-time basis. Products from 50 Members and Organizations.
- Hosts tools and resources to help members improve the quality and presentation of their agromet. bulletins. Over 70 links.



# World AgroMeteorological Information Service



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## Regions

[Africa](#)  
[Asia](#)  
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[N & Central America](#)  
[S.W. Pacific](#)  
[Europe](#)

[Locust Weather](#)  
[Tools & Resources](#)

## Related Web Sites

[WMO AgMet](#)  
[World Weather](#)  
[Severe Weather](#)

## Other Links

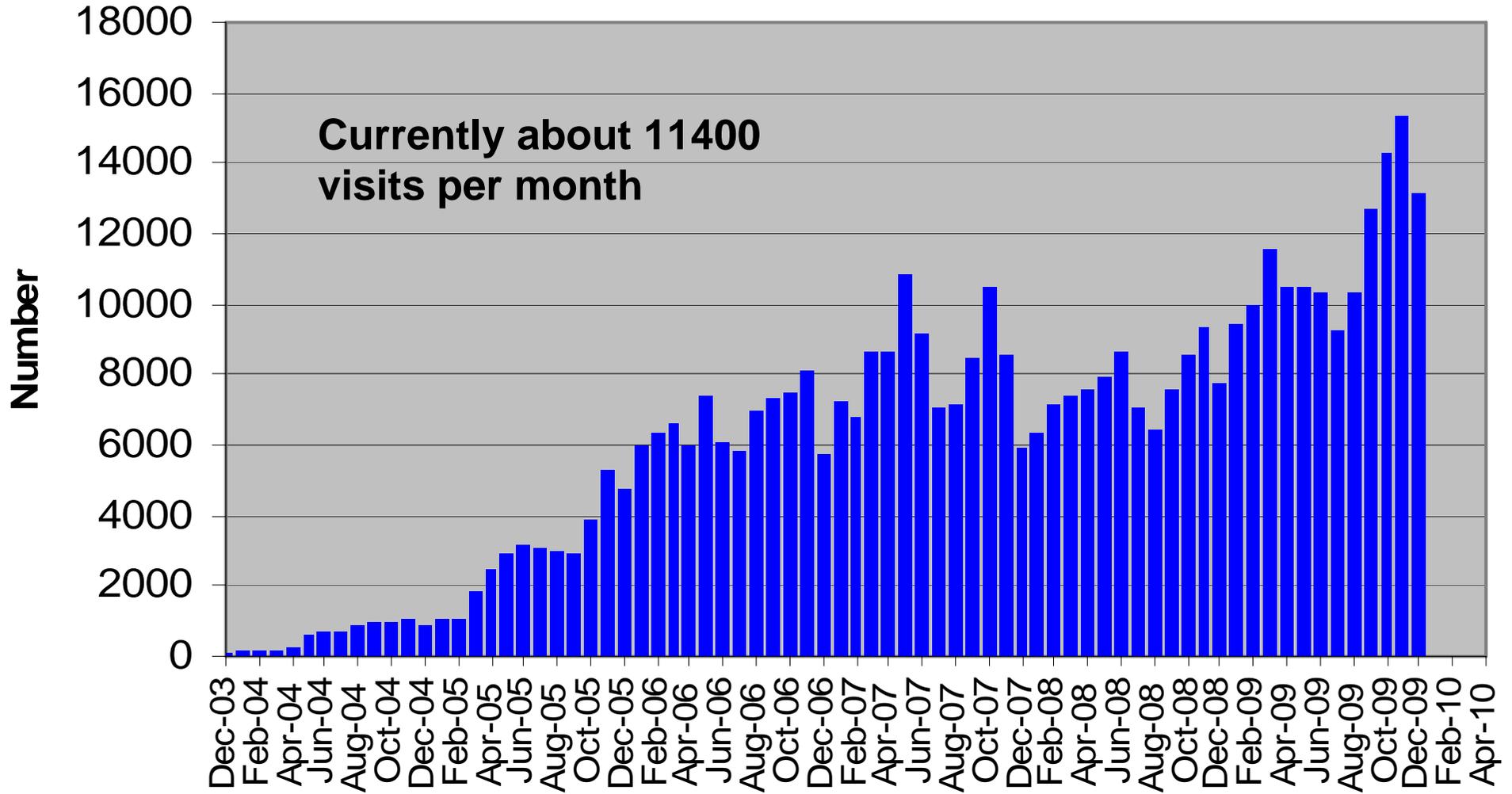
## Products Available For:

<a href="#">ACMAD</a>	<a href="#">Germany</a>
<a href="#">Albania</a>	<a href="#">India</a>
<a href="#">Argentina</a>	<a href="#">Italy</a>
<a href="#">Australia</a>	<a href="#">Kenya</a>
<a href="#">Bangladesh</a>	<a href="#">Lesotho</a>
<a href="#">Belgium</a>	<a href="#">Malawi</a>
<a href="#">Belize</a>	<a href="#">Malaysia</a>
<a href="#">Brazil (2)</a>	<a href="#">Mali</a>
<a href="#">Bulgaria</a>	<a href="#">Mauritania</a>
<a href="#">Burkina Faso</a>	<a href="#">Mozambique</a>
<a href="#">Canada</a>	<a href="#">Mexico</a>
<a href="#">Chile</a>	<a href="#">New Zealand</a>
<a href="#">China</a>	<a href="#">Niger</a>
<a href="#">Colombia</a>	<a href="#">Pakistan</a>
<a href="#">Côte d'Ivoire</a>	<a href="#">Peru</a>
<a href="#">Cuba</a>	<a href="#">Philippines</a>
<a href="#">Dominican Republic</a>	<a href="#">SADC</a>
<a href="#">DMCSEE</a>	<a href="#">Sénégal</a>
<a href="#">Ecuador</a>	<a href="#">Sri Lanka</a>
<a href="#">El Salvador</a>	<a href="#">South Pacific</a>
<a href="#">Ethiopia</a>	<a href="#">Swaziland</a>
<a href="#">EU-MARS</a>	<a href="#">Tanzania</a>
<a href="#">Fiji</a>	<a href="#">Turkey</a>
<a href="#">Gambia</a>	<a href="#">USA (2)</a>

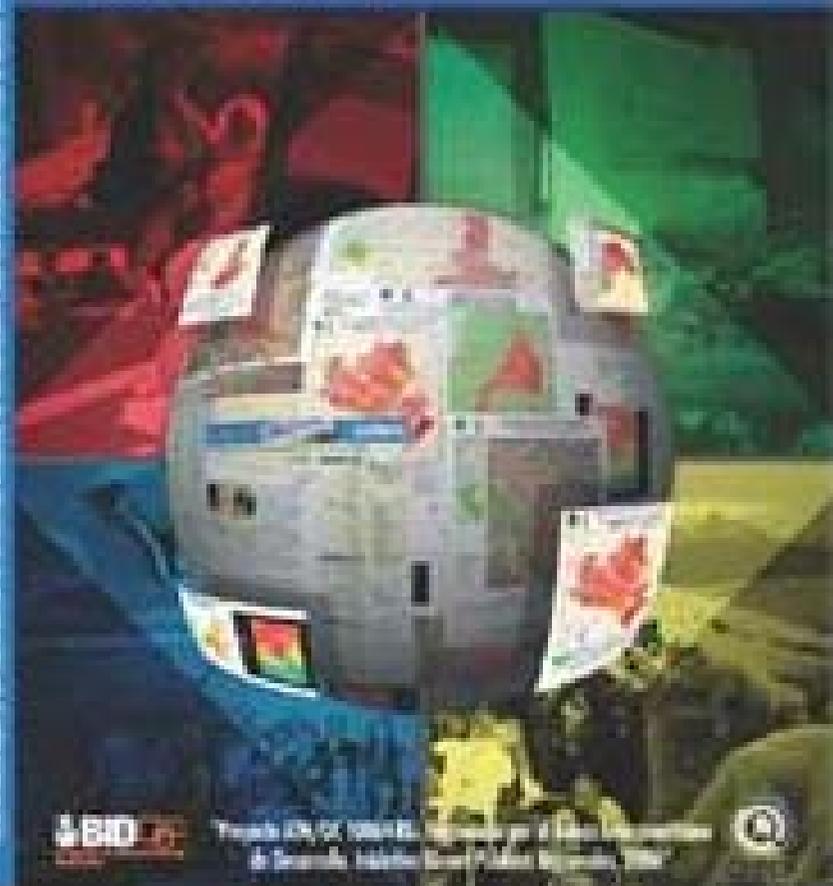
Note: The numbers after country names indicate the number of different organizations or agencies that provide products.



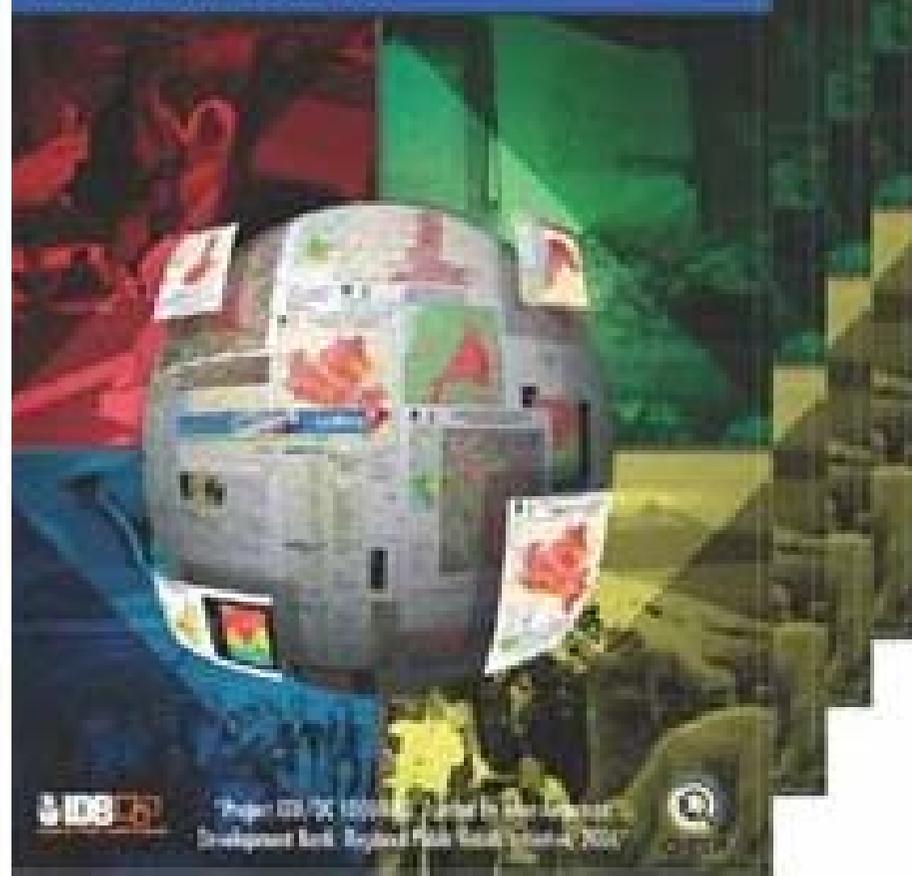
# Number of WAMIS Visits per Month



Guía Técnica para la Implementación de un  
Sistema Regional de Información Climática  
Aplicada a la Gestión de Riesgo Agrícola  
en los Países Andinos



Technical Guide for the Implementation of a  
Regional Climate Information System  
Applied to Agricultural Risk Management  
in the Andean Countries





# METAGRI Project - Roving Seminars on Weather, Climate and Farmers in West Africa

- **WMO pilot project** in Ethiopia and India in 2007
- Funding Agency - **State Agency for Meteorology in Spain**
- Seminars content adapted to local conditions of country
- Roving seminars **1-2 day duration**; bring together farmers from a group of villages to a centralized location
- 8-10 Roving seminars were organized in **Burkina Faso, Mali, Mauritania, Niger, and Senegal** from Sep 2008 to Jan 2009
- 10 roving seminars in **Benin, Cape Verde, Gambia, Guinée, Guinée-Bissau, and Togo** from July to Sept 2009









# Current Projects

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- CAMI
- Rockefeller Foundation Grant For Training Of Trainers On Weather and Climate Information And Products For Agricultural Extension Services In Ethiopia
- Roving Seminars in West Africa
- Under Development
  - Integrated Drought Management Programme
  - With Global Water Partnership and modeled after Associated Programme on Flood Management (APFM)



# Example of Workshops and Meetings Organized

- WMO/COST Symposium on **Climate Change and Variability- Agro Meteorological Monitoring and Coping Strategies** for Agriculture (June 2008)
- Inter. Workshop on Advances in Operational Weather Systems for **Fire Danger Rating** (July 2008)
- WMO/FAO/UNESCAP International Symposium on **Climate Change and Food Security in South Asia** (Aug 2008)
- Inter. Workshop on **Drought and Extreme Temperatures: Preparedness & Management** for Sustainable Agriculture, Rangelands, Forestry & Fisheries (Feb 2009)
- International Workshop on **Adaptation to Climate Change** in West African Agriculture (April 2009)
- Inter. Workshop on **Content, Communication and Use of Agromet. Products and Services** for Sustainable Agriculture (May 2009)



# Inter-regional Workshop on Indices and Early Warning Systems for Drought

- Workshop was organized at the University of Nebraska-Lincoln, USA, Dec 2009. Jointly sponsored by WMO, School of Natural Resources and the National Drought Mitigation Centre of the University of Nebraska, NOAA, USDA, and UNCCD. **Fifty-four experts from 22 countries**
- Through “Lincoln Declaration on Drought Indices” experts made a consensus agreement that the **Standardized Precipitation Index (SPI)** should be used to characterize meteorological droughts by all NMHSs around the world.
- Next steps, WMO develop user manual on SPI and establish two working groups to recommend, by Dec 2010, indices for global use to cope with **agricultural** and **hydrological droughts**.



# Example of Training Workshops

- Seminar on the Application of Climatic Data for **Desertification Control, Drought** Preparedness and Management of Sustainable Agriculture, Antigua and Barbuda – 2004
- WMO/FAO/AGRHYMET Regional Training Workshop for the Francophone Countries on **Meteorological Information for Locust Monitoring and Control**, Niger – 2005
- WMO/FAO Training Workshop on **GIS and Remote Sensing Applications in Agricultural Meteorology**. Botswana – 2005
- Training Course on Early Systems for **Extreme Events Impact: Managing Drought** for a Sustainable Development, Italy – 2006
- Training Seminar for Focal Points on the **Roving Seminars** for Weather, Climate, and Farmers in West Africa, Mali – 2008



# Guide to Agricultural Meteorological Practices

- The Guide to Agricultural Meteorological Practices (WMO-No.134) was published in 1982. The aim of the Guide is to provide, in a convenient form, information regarding the most important practices and procedures in agricultural meteorology.
- The GAMP has been rewritten under the leadership of Dr Kees Stigter (former President) from 1999-2009 with the contributions of many scientists. The 3rd draft edition will be finished in Feb-Mar 2010.

Mannava V.K. Sivakumar  
Raymond P. Motha



ENVIRONMENTAL SCIENCE AND ENGINEERING



# Managing Weather and Climate Risks in Agriculture

Mannava V.K. Sivakumar · Ndegwa Ndiang'ui  
(Eds.)

# Climate and Land Degradation

 Springer

 Springer

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-4  
07  
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## Agricultural Meteorology Programme (AGM)



### AGM Home

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#### Commission for Agricultural Meteorology (CAgM)

#### CAgM News OPAGs

#### Guide to Agricultural Meteorological Practices (GAMP)

#### Roving Seminars on Weather, Climate, and Farmers

#### National Progress Reports

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The purpose of the **Agricultural Meteorology Programme (AGM)** is to support food and agricultural production and activities. The Programme assists WMO Members in provision of meteorological and related services to the agricultural community to help develop sustainable and economically viable agricultural systems, improve production and quality, reduce losses and risks, decrease costs, increase efficiency in the use of water, labour and energy, conserve natural resources and decrease pollution by agricultural chemicals or other agents that contribute to the degradation of the environment.

#### Recent News and Articles

- [IDŐJÁRÁS Special Issue - Jan-Jun 2009](#)
- [Sand/dust storms & Agriculture](#)
- [Eminent Professor Dr Robert Shaw Passes Away](#)

#### Commission for Agricultural Meteorology

- [CAgM-XV - 15-23 Jul](#)
- [CAgM Home Page](#)
- [OPAG & ET Links](#)



#### Upcoming AGM Meetings - [More](#)

- [CAgM Management Group Meeting, 1-3, Feb 2010, Geneva, Switzerland](#)
- [Intl Workshop Addressing Livelihood Crisis of Farmers: Weather and Climate Services, Belo Horizonte, Brazil, 12-14 Jul 2010](#)

#### Recent AGM Meetings - [More](#)

- [Inter-Regional Workshop on Indices and Early Warning Systems for Drought, 8-11, Dec 2009, Lincoln, USA](#)
- [Drought Monitor Training Workshop, 14-17 Sep 2009, Bamako, Mali](#)

# www.wmo.int/agm

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