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Organisation météorologique mondiale  
Organización Meteorológica Mundial  
Всемирная метеорологическая организация  
المنظمة العالمية للأرصاد الجوية  
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Anexo: 1 (disponible en inglés solamente)

Asunto: Apoyo adicional al Marco Mundial para los Servicios Climáticos

Estimado señor/Estimada señora:

Como sin duda recordará, el Marco Mundial para los Servicios Climáticos (MMSC) se estableció hace justamente seis años, y me dirijo a usted para solicitar su apoyo adicional.

El MMSC constituye actualmente un marco mundial en el que participan múltiples partes interesadas y que brinda asistencia a los países en la creación de resiliencia frente al clima y en la gestión de los sectores económicos sensibles a las condiciones climáticas. Si bien se han realizado enormes progresos, todavía es necesario hacer mucho más para garantizar que todos los países dispongan de los instrumentos y los recursos necesarios para proteger a sus ciudadanos y prosperar en la era del cambio climático.

El Comité de gestión de la Junta Intergubernamental sobre los Servicios Climáticos, que celebró su quinta reunión los días 19 y 20 de octubre de 2017, aprobó el [examen de mitad de período sobre el Plan decenal de ejecución del MMSC](#). El examen lo realizó un grupo de expertos externos de la Universidad de Arizona y puede consultarse en el sitio web del MMSC.

En el examen se reconoció que durante sus cinco primeros años, el MMSC ha “ayudado a liderar el ámbito en expansión de los servicios climáticos y, en el proceso, ha contribuido a realizar mejoras en la producción, la disponibilidad y el uso de servicios climáticos en todo el mundo (...) En el examen se elogia el MMSC por sus principales logros al contribuir a la integración de los servicios climáticos en las escalas nacional, regional y mundial”.

A los Representantes Permanentes (o Directores de los Servicios Meteorológicos o Hidrometeorológicos) de los Miembros de la OMM

copias: asesores hidrológicos de los Representantes Permanentes

Me complació leer en la conclusión del examen que el “MMSC ocupa un lugar idóneo para ejercer una función única como motor catalizador que sintetiza y comparte las lecciones aprendidas, pero que también establece normas de buenas prácticas”.

Además de su función más amplia como promotor del concepto y de los beneficios de los servicios climáticos, el MMSC ha contribuido de manera fundamental al establecimiento de servicios operativos a nivel nacional y regional. Entre los logros más recientes del MMSC figuran:

- La creación de asociaciones por medio del [Comité Consultivo de Asociados](#), que representa una enorme cantidad de organizaciones;
- El establecimiento de oficinas conjuntas y funcionarios de enlace con la Organización Mundial de la Salud (OMS), la Asociación Mundial para el Agua y el Programa Mundial de Alimentos (PMA), y la firma de memorandos de entendimiento para apoyar la ejecución del MMSC con distintas organizaciones del sistema de las Naciones Unidas y organizaciones internacionales;
- La prestación de asistencia a los países en la implantación de marcos nacionales para los servicios climáticos que contribuyen a intensificar la colaboración entre los Servicios Meteorológicos e Hidrológicos Nacionales (SMHN), los ministerios nacionales y otras organizaciones al objeto de desarrollar y aplicar eficazmente los servicios climáticos (en Burkina Faso, Camerún, Chad, Colombia, Côte d'Ivoire, Malawi, Mali, Madagascar, Senegal, República Unida de Tanzania, Sudáfrica y Vanuatu);
- La elaboración de una hoja de ruta para fomentar la prestación de servicios meteorológicos, hídricos y climáticos coordinados en África y una hoja de ruta para fortalecer los servicios climáticos en el Pacífico;
- El Plan de ejecución del MMSC ha servido de base para poner en marcha muchas iniciativas que contribuyen a estos servicios, incluidos el Servicio de Cambio Climático del programa Copernicus, el programa entre el MMSC y los Estados de África, del Caribe y del Pacífico (MMSC-ACP, en preparación) y para armonizar otras iniciativas de apoyo, como la estrategia Challenge 2025 de la Organización Europea para la Explotación de Satélites Meteorológicos (EUMETSAT);

Sé que muchas organizaciones de nuestra comunidad sufren dificultades presupuestarias cada vez más acuciantes. En mi opinión, no obstante, las contribuciones multiplicarían enormemente el valor del MMSC y apoyarían las acciones realizadas a escala mundial para proteger a las personas de todo el mundo de los peligros meteorológicos y las tendencias climáticas negativas.

Le saluda atentamente.

A handwritten signature in blue ink, consisting of a long, sweeping horizontal line followed by a smaller, more complex flourish underneath.

(P. Taalas)  
Secretario General



WORLD  
METEOROLOGICAL  
ORGANIZATION



**GFCS**

GLOBAL FRAMEWORK FOR  
CLIMATE SERVICES

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# Priority Needs

for the Operationalization of the  
Global Framework for Climate Services

# JOIN US IN MEETING THE PRIORITY NEEDS OF GFCS

The **Global Framework for Climate Services (GFCS)** enables and accelerates the coordinated and technically and scientifically sound implementation of measures to improve climate-related outcomes at national, regional and global levels. It aligns climate adaptation and mitigation activities in climate-sensitive priority areas: agriculture, energy, disaster risk reduction, health, and water.

As a framework with broad participation and reach, GFCS enables the development and application of climate services to assist decision-making at all levels in support of addressing climate-related risks. The Priority Needs for the Operationalization of GFCS outlines the essential activities for mobilizing and developing climate services.

This brochure is a brief version of the [GFCS Priority Needs document](#) that outlines the status of the GFCS implementation to date and funding gaps where support is required. It is based on the [GFCS Implementation Plan](#) that was developed in a consultative process and identifies priority areas. This information is organized in three main sections: Priority Applications; Building and Sustaining Bridges; and Foundational Pillars. Each section contains brief introductory descriptions, lists outputs by envisioned key activities, and showcases some recent achievements.

**Implementation Plan of  
the Global Framework for  
Climate Services**

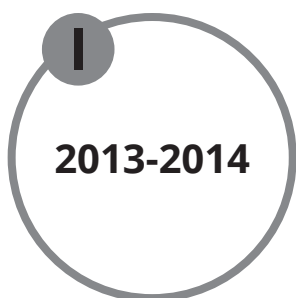


**Priority Needs for the  
Operationalization of the  
Global Framework for  
Climate Services**



## WHERE ARE WE NOW?

### GFCS Implementation



Establishing infrastructure and implementing demonstration projects in the initial five priority areas



**Developing and strengthening core regional and national mechanisms for climate services**



Expanding and ensuring sustainability of institutional mechanisms

## WHAT REQUIRES SUPPORT?

### GFCS Phase II Implementation Objectives



#### **PRIORITY APPLICATIONS**

Improving decision making in climate sensitive areas

- Agriculture and Food Security
- Disaster Risk Reduction
- Energy
- Health
- Water Resources

#### **BUILDING AND SUSTAINING BRIDGES**

Connecting user needs with climate services through sustained engagement mechanisms

- National Activities
- Regional Activities
- Global Activities

#### **FOUNDATIONAL PILLARS**

Enhancing technical and scientific capabilities to support user-driven climate services

- Observations and Monitoring
- Research, Modelling and Prediction
- Climate Services Information System
- Capacity Development

# CONTENTS

<b>Objective 1: Priority Applications</b>	<b>5</b>
.....	
AGRICULTURE AND FOOD SECURITY	6
.....	
DISASTER RISK REDUCTION	7
.....	
ENERGY	8
.....	
HEALTH	9
.....	
WATER RESOURCES	10
.....	
<b>Objective 2: Building and sustaining bridges</b>	<b>11</b>
.....	
NATIONAL	12
.....	
REGIONAL	12
.....	
GLOBAL	13
.....	
<b>Objective 3: Foundational pillars</b>	<b>14</b>
.....	
CLIMATE SERVICES INFORMATION SYSTEM	15
.....	
OBSERVATIONS AND MONITORING	17
.....	
RESEARCH, MODELLING AND PREDICTION	18
.....	
CAPACITY DEVELOPMENT	16



## OBJECTIVE 1

# PRIORITY APPLICATIONS

Improving decision-making and investments in climate-sensitive sectors through the co-development and application of climate services with users



## AGRICULTURE AND FOOD SECURITY

Agriculture and food security are complex sectors impacted by climatic and non-climatic factors. Tailored climate information enables greater resilience and effective coping strategies at local, national, regional, and global levels through better understanding and management of climate change and variability. This has positive impacts for food availability, access, utilization, and stability. GFCS aims to overcome coordination gaps between various sector partners and to build synergies among the existing projects and initiatives.

Establish a climate services, agriculture and food security inter-agency coordination team

### OUTPUTS:

- understanding of user needs to inform the development of new climate products and services
- understanding of what is available and where there are gaps in terms of products needed at different levels and by different actors
- identification of strategic priorities to strengthen climate services in food security and agriculture
- technical advisory, planning, and coordination to pilot and scale up initiatives for enhanced resilience and food security

Strengthen and scale up climate services for food security at the national level

### OUTPUTS:

- strengthened national early warning systems for food security
- climate information integrated into insurance, credit provision, and crop monitoring
- support for national context analysis on food security, nutrition and climate change to inform planning
- development of new climate products tailored to the needs of vulnerable communities

## RECENT ACHIEVEMENTS

- Mechanisms set up to enhance coordination between partners (WMO-FAO Memorandum of Understanding)
- WFP dialogue platform held on Climate Services and Food Security
- Community-based Participatory Planning effective in selected GFCS project countries along with efficient sensitization and climate information dissemination through radio, text messaging, extension workers and training
- WMO/FAO/UNCCD drought management and preparedness conference enabled development of a regional strategic drought management framework for the Latin America and Caribbean



## DISASTER RISK REDUCTION

Every year, natural hazards cause significant loss of life and erode gains in economic development. These activities support countries at high risk from weather, climate and water hazards in implementing climate services that contribute to national and local efforts to reduce, manage and offset the risk of disasters.

Develop and implement national-level climate services for risk analysis, disaster risk reduction (DRR), and financial protection

### OUTPUTS:

- risk analysis reports available to decision-makers and the public
- better-informed climate services to meet local needs
- evidence-based DRR strategies and action plans
- implementation of activities to address the causal factors of disasters

Support regional and country-level climate services implementation in line with regional, national, and local DRR strategies pursuant to the Sendai Framework

### OUTPUTS:

- advocacy and guidance on climate services relevance and applications; consultations for global, regional, and national DRR platforms and mechanisms
- effective stakeholder interaction and partnerships in regional, national and local contexts, using mechanisms such as the Resilient Cities initiative and national and regional DRR platforms or consultations, and regional intergovernmental processes, emphasizing outreach through existing networks and standing mechanisms of the United Nations Office for Disaster Risk Reduction and the International Strategy for Disaster Reduction

## RECENT ACHIEVEMENTS

- Actionable community contingency plans are in place in selected GFCS project countries and communicated through intermediaries training and outreach, and educational institutions
- GFCS contributed to the planned WMO Guide for Integrated Urban Weather, Environment and Climate Services to enhance urban resilience
- UNISDR is supporting the IGAD member Countries in the implementation of the IGAD Drought Disaster Resilience Sustainability Initiative (IDDRSI) strategy, a regional project aimed at stopping drought from being a major humanitarian disaster in the region



## ENERGY

The complex and interconnected nature of energy systems creates significant challenges for how this sector responds, adapts and mitigates against climate variability and the associated risks. Climate variability across short, medium and long timescales affects all energy sources. These activities aim to raise awareness on climate information in support of decision making processes; develop products per industry sector, including verification of performance and illustration of cost-benefits; and provide a forum for technical advisory, learning, development and coordination services.

Establish Energy Joint Office to support energy user interface for climate services

### OUTPUTS:

- coordination among partners
- resource mobilization
- effective engagement with energy companies
- training courses, development of tools and methodologies

Implement climate services for energy in selected countries

### OUTPUT:

- proposals and support documentation submitted to funding agencies and donors

Effectively deliver decision-support climate information for energy sector use

### OUTPUT:

- products, including gridded data for engineers, and charts, tables and diagrams to help political decision-makers, energy sector managers and other economic sectors pursue efficient energy and environmental planning

## RECENT ACHIEVEMENTS

- GFCS collaboration with the World Energy and Meteorological Council and Copernicus' European Climatic Energy Mixes
- Global Climate Fund concept note and preparation funding application for energy submitted, focusing on Colombia, Moldova and Tanzania
- Adaptation Fund proposal under development on Water, Energy, and Food Nexus: Addressing Adaptation through Climate Services in Colombia and Chile



## HEALTH

Weather and climate are inextricably linked to some of the most fundamental determinants of human health such as clean air and water, adequate food and shelter, and the distribution and occurrence of disease. These activities support countries and their partners in climate-vulnerable contexts.

### Establish a Technical Support Unit and health user interface for climate services

#### OUTPUTS:

- increased demand for and capacity of health and meteorological professionals to collaborate through an online technical resource portal to make climate knowledge more readily accessible and increase opportunities for networking experts and users
- technical guidance documents, training events and educational products
- increased activity of climate services projects and partnerships, such as ClimHealthAfrica and the Global Heat Health Information Network

### Establish climate and health working groups in developing countries

#### OUTPUTS:

- national-scale joint projects and research
- technical training, improved data exchange and use, institutional agreements and working arrangements between NMHSs, ministries of health and other partners

### Multi-hazard risk monitoring and early warning for health protection

#### OUTPUTS:

- support for the definition of an action plan for health early warning systems for biological and health threats within multi-hazard early warning systems
- support for the design of an action plan to address climate-related health risks within emergency and disaster risk management programmes and Sendai Framework implementation
- development of a climate risk management toolkit, including needs-based guidelines and good practices for scientific consensus and tool development
- development of data-integration tools to enhance interoperability of core datasets for risk monitoring
- development and testing integrated forecast and warning products

## RECENT ACHIEVEMENTS

- Climate/Health Memorandum of Understanding signed between Ministry of Health and NMHS in Mozambique and drafted in Malawi and Tanzania to support data exchange
- Global Heat Health Information Network launched
- Readiness Assessment Toolkit (WHO) available for deployment
- Climate and Health Country Profile Project features evidence-based snapshots of the climate hazards and health risks and opportunities in 40+ countries
- Climate/Health national groups in Malawi, Tanzania, West Africa CHWG, Mozambique are supported through GFCS
- Joint publications (Climate Services for Health Case Studies; ENSO Guidance and SOP; Climate Service Readiness Tool; DHIS-2 partnerships and Integrated Surveillance Prototypes, etc.) and sponsored participation in scientific events



## WATER

Climate information is needed to adequately understand the influence of weather and climate on limited water resources. These activities respond to the need for core technical and institutional capacities at regional and national levels to develop and deliver climate and hydrological services for better water management.

### Establish integrated flood and drought management help desks

#### OUTPUTS:

- a platform for coordination for partners
- support development of existing and new national and regional projects and programmes
- develop technical guidance (guidelines and tools)
- sustain a dialogue between the water and climate community through communication and linking up with existing initiatives active in the water-climate interface

### Develop dialogues and mechanisms for climate services in water-sensitive regions

#### OUTPUT:

- improved delivery and application of climate services for better water management
- improved food security, energy generation, public health, and disaster prevention

### Prepare flood, drought and water resource management projects

#### OUTPUT:

- funded projects on the development and application of climate services for water management

## RECENT ACHIEVEMENTS

- Scoping for the Hydrological Status and Outlook System (HydroSOS), an operational system to assess global hydrological variability, is completed
- Integrated Drought Management HelpDesk launched and support base expanded to over 10 expert organizations
- A number of national pilots advanced to develop mechanisms for climate services in water-sensitive region



## OBJECTIVE 2

# BUILDING AND SUSTAINING BRIDGES

Establishing and enhancing sustained mechanisms to support effective, user-driven climate services at regional and national levels

### NATIONAL ACTIVITIES

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Establish and support national dialogues on climate services and frameworks for climate services

#### OUTPUTS:

- guidance document on the establishment of a National Framework for Climate Services (NFCS)
- NCOFs and national climate forums serving as UIP mechanisms at national level
- collection of lessons learnt and knowledge transfer to share experiences with other countries

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#### RECENT ACHIEVEMENTS

- Step-by-Step Guide for Establishing A National Framework for Climate Services (NFCS) is available
- Number of NCOFs and national climate forums serving as UIPs increased

### REGIONAL ACTIVITIES

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Establish and strengthen regional systems for providing climate services

#### OUTPUTS:

- regional dialogues and consultations
- sustainable partnerships and long-term commitments
- enhanced Regional Climate Outlook Forum processes and climate service user forums, including through a global regional outlook forum review
- regional frameworks for climate services
- identification of core regional requirements for climate services
- identification of roles, responsibilities and mandates of institutions responsible for regional support, including Regional Climate Centres
- interim arrangements for national-level Climate Services Information System products to be supplied by regional institutions for countries in need

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#### RECENT ACHIEVEMENTS

- Roadmap for Scaling up the Delivery of Coordinated Weather, Water and Climate Services in Africa was drafted as an outcome of the Saly Regional Stakeholder Coordination Workshop
- Global Review of Regional Climate Outlook Forums

### GLOBAL ACTIVITIES

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Support and strengthen the GFCS Office to effectively coordinate GFCS implementation

#### OUTPUTS:

- efficient governance meetings
- identification of opportunities and efficiencies through coordination across the objectives
- strengthened activities through the identification and utilization of technical experts

Communications and knowledge management for effective climate services

#### OUTPUTS:

- GFCS HelpDesk consisting of a series of tools, including policy documents, case examples and a pool of support base partners ready to contribute on-demand
- outreach and communication materials to promote the scientific and operational understanding of climate services

Monitoring and evaluation of GFCS

#### OUTPUT:

- a documented understanding of progress towards GFCS implementation

### RECENT ACHIEVEMENTS

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- GFCS knowledge management in Africa advanced through the support of the USAID-funded Assessing Sustainability and Effectiveness of Climate Information Services (CIS) in Africa project
- GFCS HelpDesk scoping workshop held, German JPO assigned for technical implementation
- GFCS Mid-Term Review and status update on Priority Needs prepared



## OBJECTIVE 3

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# FOUNDATIONAL PILLARS

Enhancing core technical and scientific capabilities for  
user-driven climate services



# CLIMATE SERVICE INFORMATION SYSTEM

Implementing a strategy hinging on a three-tiered structure of collaborating institutions will ensure that climate information and products are effectively generated, exchanged and disseminated globally, regionally and nationally.

## Develop a climate services toolkit

### OUTPUTS:

- standard procedures and best practices for climate data management and mining, monitoring, prediction and projection
- climate service toolkit ready for distribution and deployment, and training workshops on its use

## Establish, strengthen and sustain regional partnerships and networks for enhancing CSIS capacities

### OUTPUTS:

- regional frameworks for Climate Service Information System (CSIS) implementation
- Regional Climate Centre (RCC) and Regional Specialized Meteorological Centre workshops
- climate watch systems
- regional management team meetings
- regional collaborative platforms
- stakeholder engagement

## Facilitate the implementation and coordination of the CSIS pillar

### OUTPUTS:

- organization of an international workshop
- strategy for deployment of the climate services toolkit
- technical reference manuals on CSIS operations
- guidance document on NFCS

## Improve Climate Data Management Systems

### OUTPUT:

- consistent national, regional and global climate datasets and related data products and services

## Develop and demonstrate a national climate services concept including enhancement of national CSIS capacities

### OUTPUTS:

- a template for a national climate services concept suitable for implementation in developing countries
- access to high-resolution climate data and products through twinning arrangements between advanced and less capable National Meteorological and Hydrological Services (NMHSs)
- deployment of mentor scientists in developing countries
- exchange of experts and on-the-job training

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## RECENT ACHIEVEMENTS

- CSIS Toolkit (CST) is launched and ready for deployment
- Work plans developed for 7 countries (Tanzania, Bhutan, Burkina Faso, Dominica, Moldova, Papua New Guinea and Peru) to test the CST
- Twinning arrangements between advanced and less capable NMHSs continued
- Mentor scientists deployed through NORCAP secondments in Africa RCCs and NMHSs



## CAPACITY DEVELOPMENT

GFCS aims to develop the capacity of countries to apply and generate climate information and products relevant to their particular concerns; thus, all aspects of the Framework include capacity development.

Develop education and training resources for an international competency framework for climate services

### OUTPUT:

- experts with the appropriate competencies providing technical support for implementation carried out by various entities in a strategic and targeted manner

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## RECENT ACHIEVEMENTS

- Capabilities enhanced in Least Developed Countries (Malawi, Tanzania, etc.) through sensitization activities (sensitization of population through Participatory Integrated Climate Services for Agriculture (PICSA) trainings, radio and SMS services, integrating climate component into education for school children), development of the User Interface Platform mechanism, and deployment of mentors



## OBSERVATIONS AND MONITORING

Shifting the focus from global to local and national monitoring, these activities emphasize observing networks in developing and least developed countries and small island developing States.

### Identify data needs and design of observational systems in data-poor regions

#### OUTPUT:

- detailed data requirements and plans to deliver these needs

### Large-scale data recovery and digitization

#### OUTPUT:

- consolidated paper archives and high-quality computer-readable datasets from rescued data

### Demonstrate efficient improvements to ground-based and space-based networks for measuring changes in the water cycle in pilot area(s)

#### OUTPUT:

- operational water-cycle monitoring in selected catchment areas

### Establish modern, timely climate system monitoring in support of multi-hazard early warning and disaster risk reduction

#### OUTPUTS:

- development and provision of software, guidelines and training for climate monitoring, including analysis of extremes
- climate assessment reports and reviews (for example, climate statements, state-of-the-climate reports and reviews, reports and advisories on extreme weather and climate events) that have improved content and coverage with a reduced time delay

## RECENT ACHIEVEMENTS

- Assessment reports for observing capabilities conducted in Papua New Guinea, Senegal, Niger, Saudi Arabia, and Canada
- Climate data rescue activities implemented in Uzbekistan, Tanzania, Uganda, Burkina Faso, Niger, Mali, Guinea, Ghana, Cote d'Ivoire, Congo, Senegal, Jamaica, Mozambique and Botswana
- South-East European Multi-Hazard Early Warning Advisory System (MHEWS) is awarded, strengthening regional cooperation and national MHEWS systems through impact-based forecasts and risk-based warning capacities production and harmonization



## RESEARCH, MODELLING AND PREDICTION

The proposed activities highlight the potential to create a positive feedback between the fundamental climate community services role of World Climate Research Programme and the climate services needs represented by GFCS

### Research on climate predictability and improving prognostic skills: sub-seasonal to seasonal timescales

#### OUTPUTS:

- increased utilization of improved forecast products and understanding of their uncertainty estimates by the applications community
- demonstration projects based on recent extreme events and their impacts, often in conjunction with the World Climate Research Programme Frontiers of Climate Information projects

### Research on climate predictability and improving prognostic skills: decadal timescales

#### OUTPUT:

- a real-time Global Decadal Climate Outlook initiated and issued by the Grand Challenge on Near-term Climate Prediction once each year (2016 onwards, with a two-year dry run before the first issuance) following the template of the Global Seasonal Climate Update for seasonal predictions. This Grand Challenge on Near-term Climate Prediction thus fills an important gap in the provision of seamless climate information, complemented by seasonal-to-interannual climate predictions on the one hand, and 30 multi-decadal and longer-term climate change projections on the other. This Grand Challenge will represent an important contribution to the provision of seamless climate services.

### Develop specific focused interdisciplinary and international partner projects on regional climate information

#### OUTPUT:

- research deliverables leading to the development of tailored climate information for the urban scale as a mechanism to promote urban-focused climate services

### Underpinning research on regional climate services development: Advance flood early warning on sub-seasonal to seasonal timescales in India with coupled hydrologic and atmospheric modelling

#### OUTPUT:

- increased utilization of improved coupled forecast products and applications to water management, of forecast products and of the understanding of their uncertainty estimates by the applications community

Underpinning research on regional climate services development: Use sub-seasonal to seasonal forecasts to integrate water and energy management in South America

**OUTPUT:**

- Uruguay demonstration research project as a prototype of the applicability of sub-seasonal to seasonal forecast-informed energy and water management for both public and private sectors relevant to energy-sector GFCS development in other parts of South America and other regions

## RECENT ACHIEVEMENTS

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- Development agencies acknowledging innovation in research by awarding programmes that include an operational research component. For example, the DFID funded High impact weather lake system (HIGHWAY) programme has been awarded £ 3.2 million over three years and aims to increase the use of weather information to improve resilience and reduce the loss of life and damage to property in the East African region, specifically within the Lake Victoria area