

**WHYCOS**  
**World Hydrological Cycle Observing System**  
-----  
**Carib-HYCOS Project**

**JP. BRICQUET**

Hydrologist, Coordinator of the Carib-HYCOS project  
**Institut de Recherche pour le Développement (IRD)**

# WHYCOS

*World Hydrological Cycle Observing System*

*What is Whycos ?*

*Why Whycos ?*



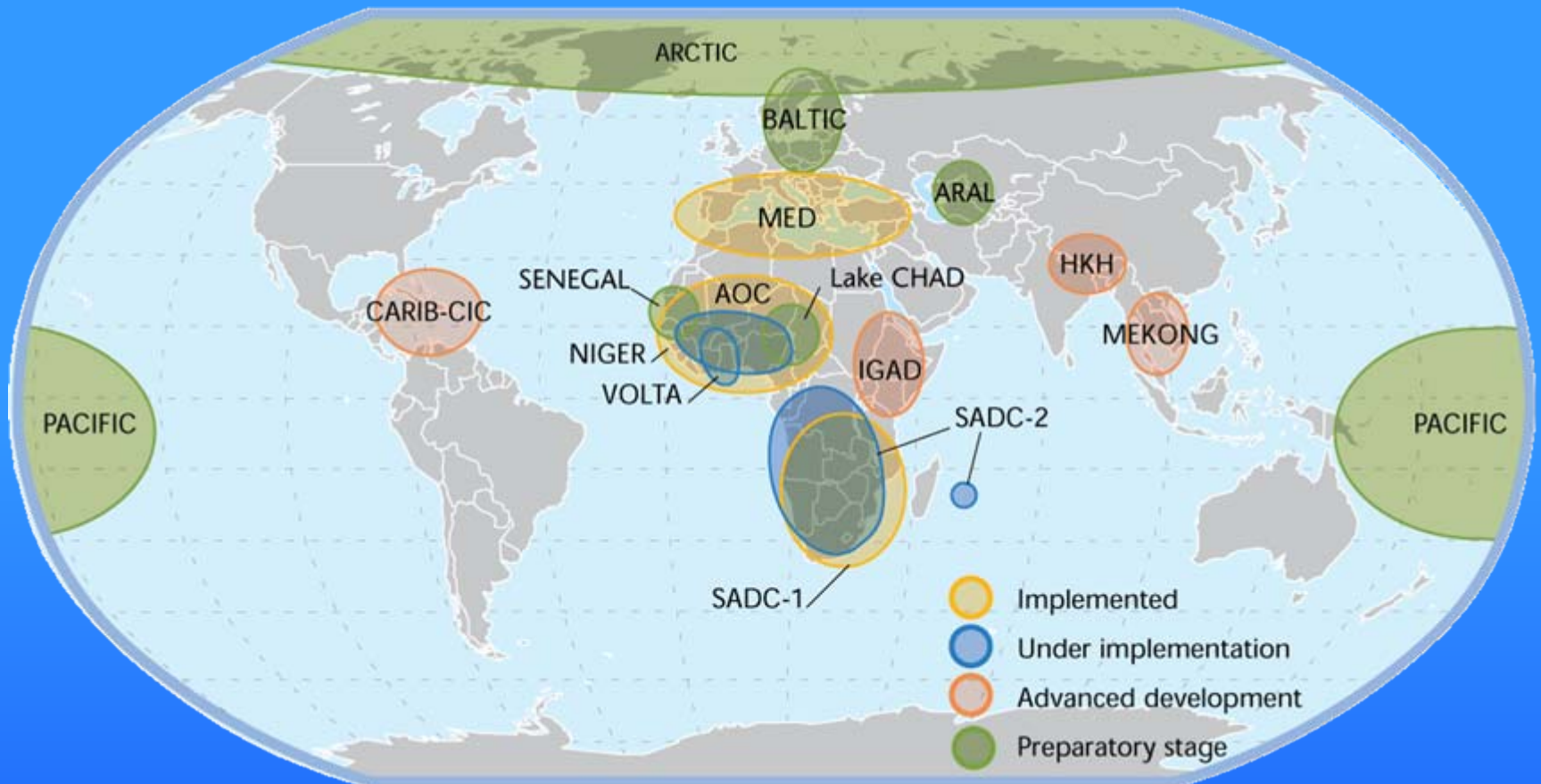
# General Objectives

- **Contribute to a world wide network of hydrological reference stations that allows the evaluation of fresh water resources and their evolution,**
- **Improve the knowledge of regional hydro-meteorological phenomena and the evolution of the environment,**
- **Facilitate the exchange of dependable, standardised data concerning water resources and foster research activities,**
- **Development of regional co-operation**

# WHY?

- **Data**
  - scarcity, insufficient,
  - heterogeneous quality,
  - inadequate archives.
- **Network**
  - declining,
  - absence of qualified personnel,
  - fieldwork incomplete, neglected,
  - lack of financial resources.
- **Insufficient regional co-operation.**

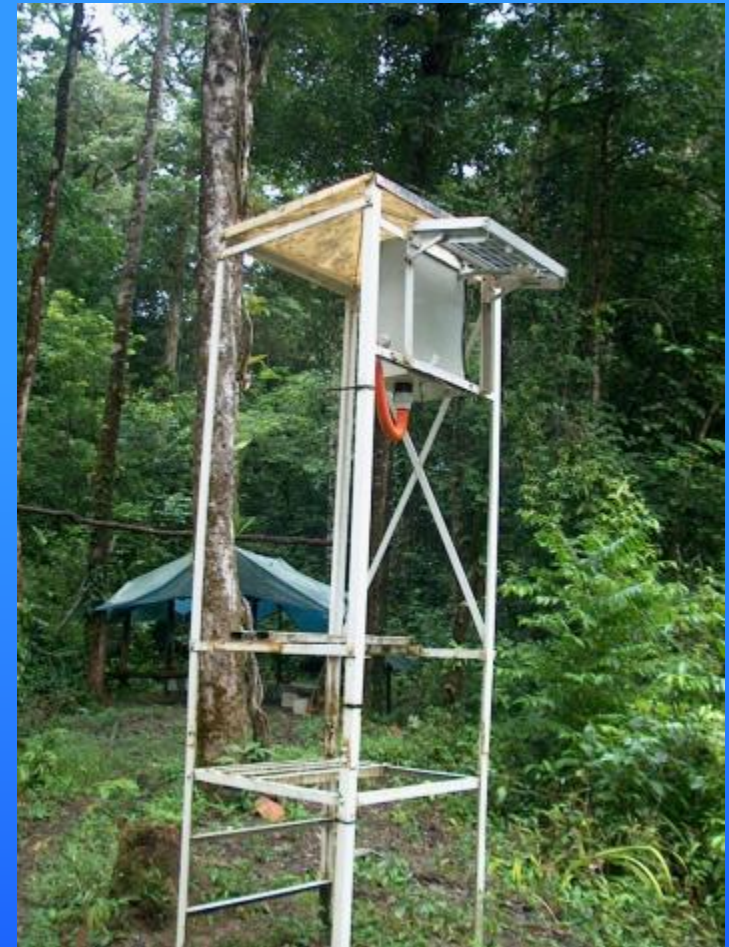
# WHERE ?

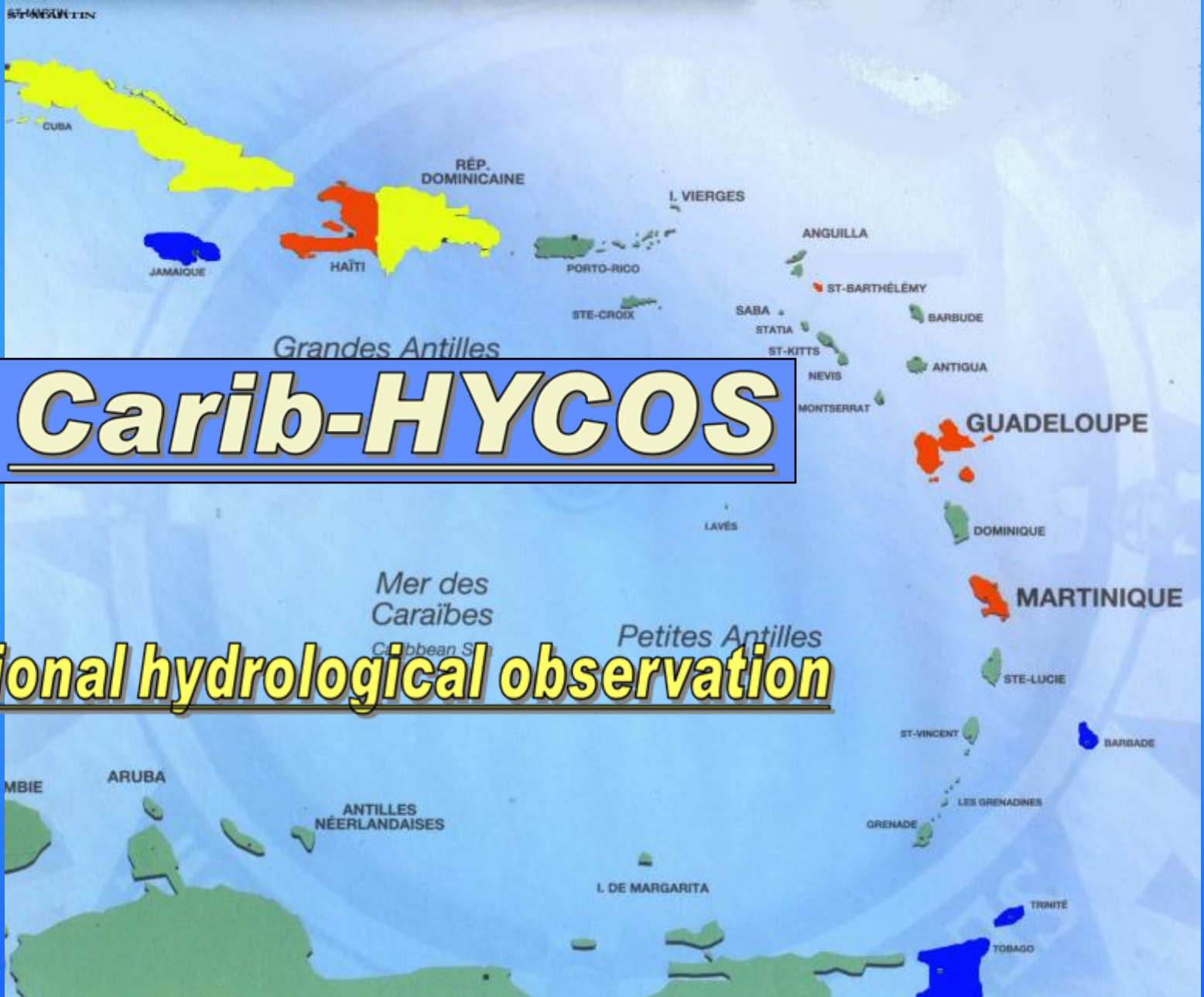


# HOW ?

From national networks of data collection platforms (DCP) ...

- **Hydrometric reference stations,**
- **Automatic stations (quantity and quality of water, meteorological variables),**
- **Real-time data transfer systems or near real time.**





# ***Carib-HYCOS***

**= regional hydrological observation**

# THE CARIB HYCOS PROJECT

## Broad objectives:

- Modernize hydro-meteorological networks within the Caribbean;
- Improve our knowledge of regional hydro-meteorological phenomena and changes in the environment;
- Facilitate the exchange of reliable and homogeneous data on water resources and the environment.



# Participants

## 11 MEMBERS COUNTRIES

- Antigua & Barbuda
- Barbados
- Cuba
- Dominica
- Dominican Republic
- Guadeloupe
- Haiti
- Jamaica
- Martinique
- Santa Lucia
- Trinidad & Tobago

## 3 main donors

- INTERREG IV (EU)
- Regional Council Martinique
- General Council Martinique

## 4 ASSOCIATE MEMBERS

CIMH / Barbados

INSMET / Cuba

CMO / Trinidad & T

WMO / Switzerland

# THE CARIB HYCOS PROJECT

**3 main components, 6 sub-components:**

- **Component I: natural disasters**
  - **Sub-component A: forecasting and flood alarm**
  - **Sub-component B: drought prediction**
- **Component II: water resources**
  - **Sub-component C: assessment of resources**
  - **Sub-component D: underground water**
  - **Sub-component E: water quality**
  - **Sub-component F: data bases**
- **Component III: regional cooperation**

# THE CARIB HYCOS PROJECT

## COMPONENT II: Water resources

- **Sub-component C: evaluation of resources**
  - **Assessment of existing networks and modernization;**
  - **Promotion of exchange of data between meteorological and hydrological services;**
  - **Assessment of need for hydrometric measuring equipment;**
  - **Installation of remote data display systems (GTS, Internet);**
  - **Development of quality control procedures for data and archiving;**
  - **Training for teams of hydrometrists.**

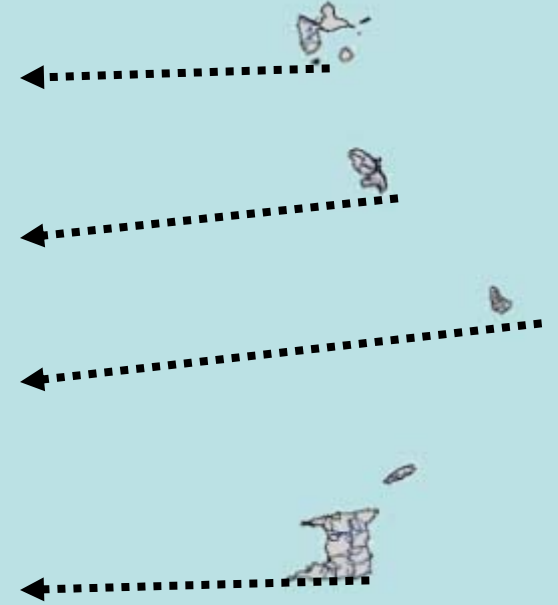
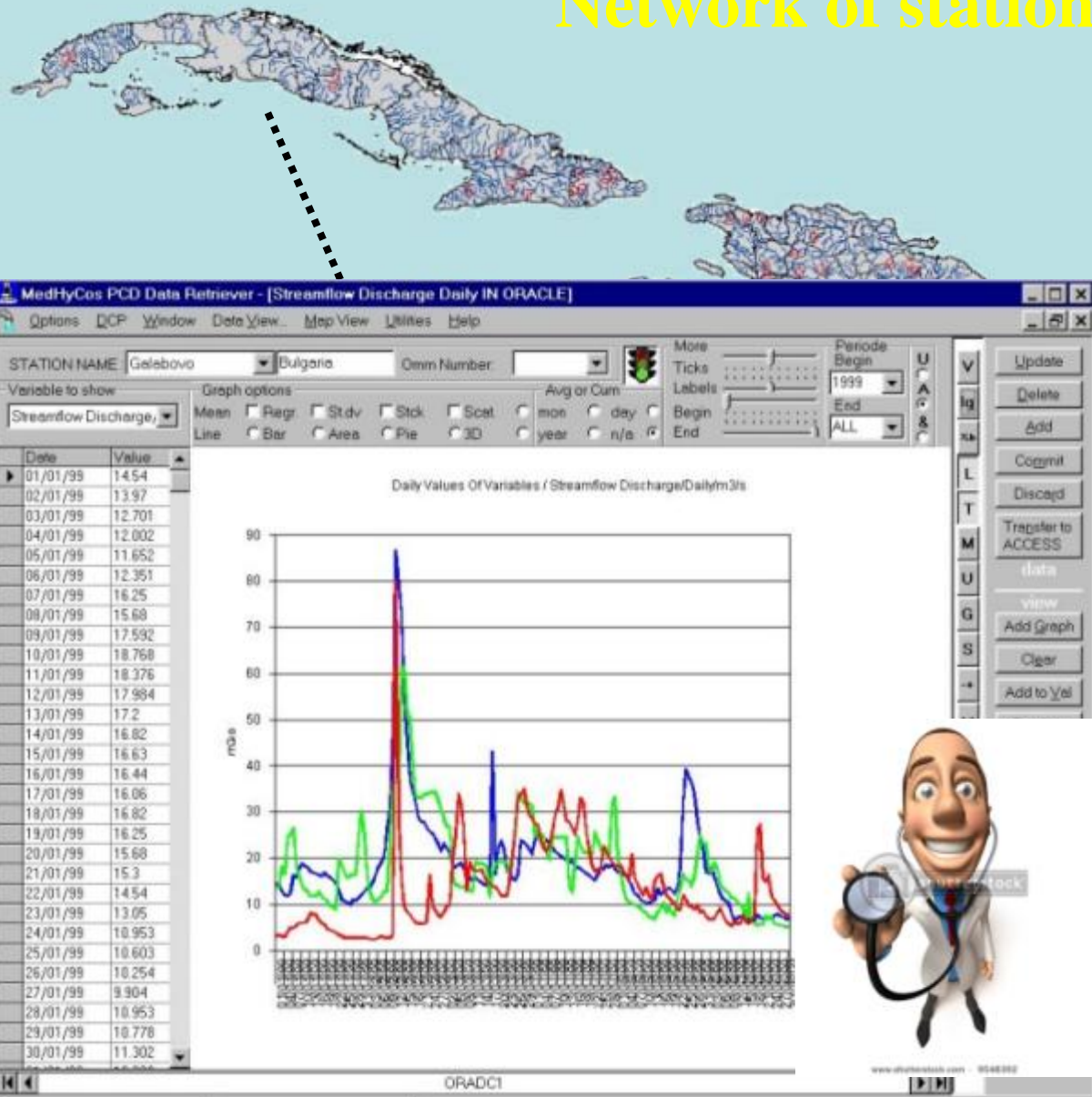
# THE CARIB HYCOS PROJECT

## COMPONENT II: Water resources

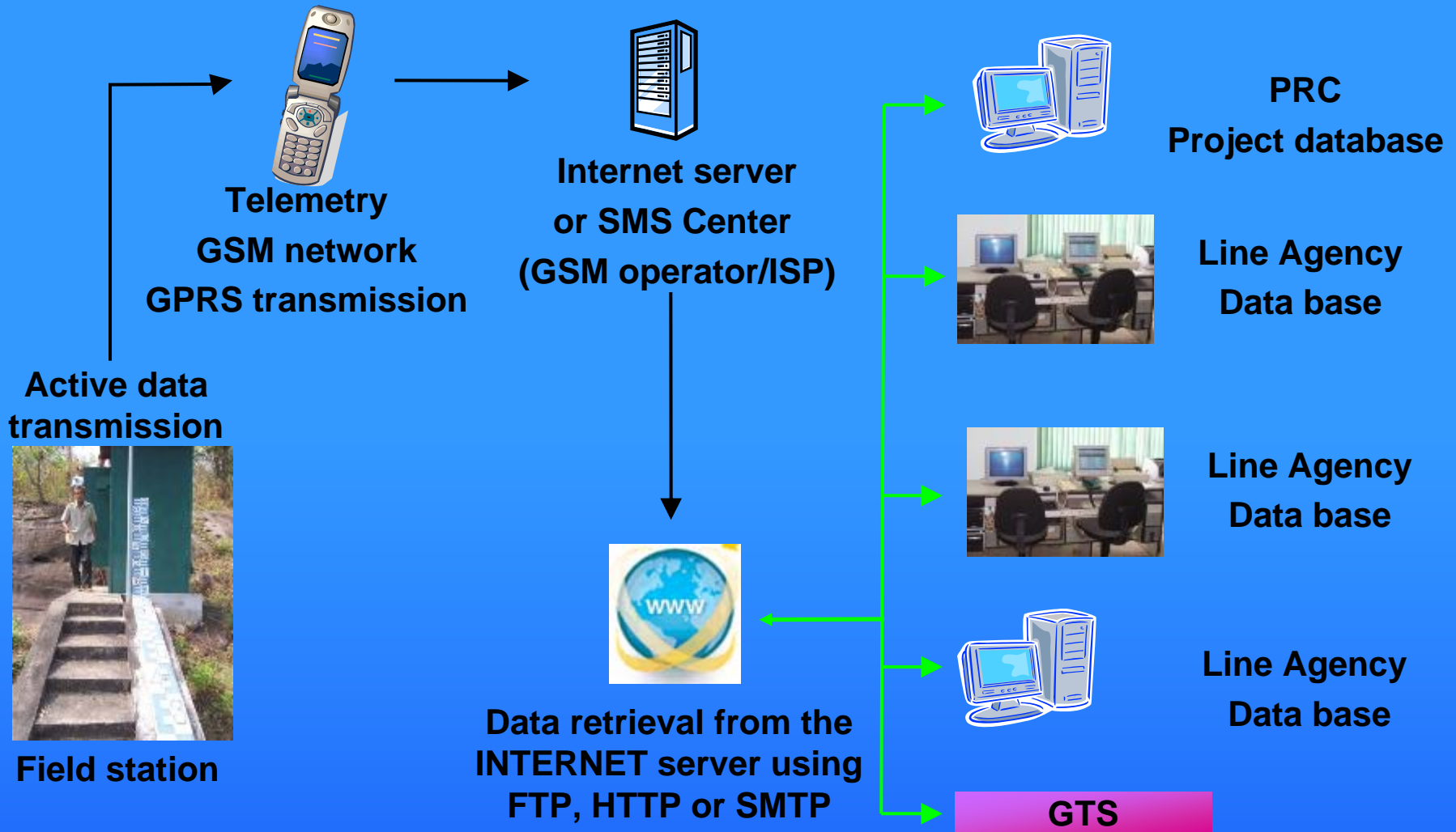
- **Sub-component F: data banks**
  - **Assessment of need for data banks, database management and appropriate software;**
  - **Development/improvement of quality assurance procedures for data and archiving;**
  - **Development/improvement of procedures for the treatment and statistical analysis of data, writing of regional summaries, etc.;**
  - **Training in the use and maintenance of databases.**

# Network of stations of reference

(50-70 stations)



# Regional data flow



# Data dissemination

Mekong tributaries real time water level monitoring

**Mekong River Commission**  
For Sustainable Development

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## Mekong Tributaries Real Time Water Level Monitoring

Click on station name on the map or on the list to see water level charts.  
[Click here to see this in Google Earth](#)

**List of Mekong real time tributary monitoring stations**

Station	River	Station Code	Country
<a href="#">Sattabongna</a>	Sangker	550102	KH
<a href="#">Chaktomuk</a>	Bassac	033401	KH
<a href="#">Kompong Luong</a>	Tonlesap	020106	KH
<a href="#">Kompong Speu</a>	Prek Thnot	640102	KH
<a href="#">Kompong Thom</a>	Stung San	610101	KH
<a href="#">Kratie</a>	Mekong	014801	KH
<a href="#">LumSAT</a>	Sre Pok	450101	KH
<a href="#">Creek Kalam</a>	Tonlesap	020102	KH
<a href="#">Siemreap</a>	Sekong	430102	KH
<a href="#">Siropohn</a>	Siropohn	530101	KH
<a href="#">Slung Siemreap</a>	Mekong	014501	KH
<a href="#">Xetum Sai</a>	Sesan	440102	KH
<a href="#">Ban Kenedone</a>	Se Bang Hieng	350101	LA
<a href="#">Ban Mhal</a>	Nam Khan	120101	LA
<a href="#">Ban Nape</a>	Nam Phao	270502	LA
<a href="#">Ban Veunthien</a>	Se Kong	430106	LA
<a href="#">Luang Prabang</a>	Mekong	011201	LA
<a href="#">Mahaxai</a>	Se Bang Fai	320107	LA
<a href="#">Muong Nooy</a>	Nam Ou	100102	LA
<a href="#">Pakac</a>	Mekong	013901	LA
<a href="#">Chiengluang</a>	Nam Ngum	230113	LA
<a href="#">Se Banah</a>	Se Bang Fai	320101	LA
<a href="#">Sonnam</a>	Se Bang Hieng	350105	LA
<a href="#">Vientiane KM6</a>	Mekong	011901	LA
<a href="#">Ban Hat Paeno</a>	Nam Sonkhran	290113	TH
<a href="#">Ban Mat Bua Paeno</a>	Nam Kok	050115	TH
<a href="#">Ban Tha Kok Doeng</a>	Nam Sonkhran	290102	TH
<a href="#">Chieng Khan</a>	Mekong	011903	TH
<a href="#">Chieng Saen</a>	Mekong	010501	TH
<a href="#">Khong Chiam</a>	Mekong	013801	TH
<a href="#">Mudakhan</a>	Mekong	013402	TH
<a href="#">Nakhom Phanom</a>	Mekong	013101	TH
<a href="#">Nong Kok</a>	Mekong	012001	TH
<a href="#">Thooen</a>	Nam Mae Ing	070103	TH
<a href="#">Wang Saebung</a>	Nam Loel	150101	TH
<a href="#">Ban Doi</a>	Se Re Pok	451305	VN
<a href="#">Ban Tho</a>	Bassac	039803	VN
<a href="#">Cau Beu</a>	Mekong	985204	VN
<a href="#">Cau Doc</a>	Bassac	039801	VN
<a href="#">Dinh An</a>	Bassac	985401	VN
<a href="#">Duc Xuyen</a>	Khong Kho	450701	VN
<a href="#">Dang Son</a>	Khong Ana	450502	VN

Vte

<http://www.mrcmekong.org/tributaries/all-byos-stations.htm> [22/11/2010 08:16:03]

Institut de recherche pour le développement

Technical Cooperation Workshop for Development of the Caribbean Regional Cooperation Programme in Multi-Hazard Early Warning System,  
Christ Church, Barbados 2-5 November 2010

# BENEFITS AND SUSTAINABILITY OF THE PROJECT

... In terms of « Management of water resources » the project is expected to provide:

- **Improved collaboration** between agencies;
- Support for research programmes that arise from regional development programmes;
- **Standardization of hydrological measurements** and their compatibility with national hydrological systems in the region,
- **Regional database** accessible and rescue data facility;
- **Real-time exchange** and circulation of information on water resources and on environmental questions in the region.



# Impacts

- **Disappearance of national barriers,**
- **Sharing of information / Integrated Water Resources Management,**
- **Creation / reinforcement of Centers of excellence,**
- **Training & education + to feed research, models,...**
- **To promote and facilitate the dissemination and use of information on the water resources,**
- **Better informed end users (medias, seminars, final conference, ...).**

# Perspectives

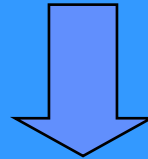


- **To sustain the Observatory → (> x.10 years);**
- **To duplicate (11 to 28 island states) & transfer the Observatory.**



# Sustainability

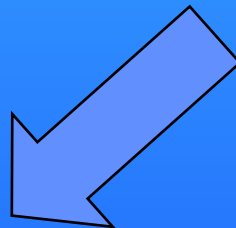
**OBSERVATORIES NETWORKS**



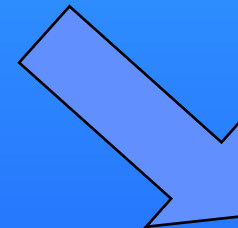
**LONG TERM**

**=**

**COST**



**INVESTMENT**



**RUNNING?**



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