



# CANDHIS

## French national centre for archiving coastal swell measurement

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**DBCP WORKSHOP**  
**Paris, September the 28<sup>th</sup> 2009**

Ressources, territoires, habitats et logement  
Energie et climat Développement durable  
Prévention des risques Infrastructures, transports et mer

**Présent  
pour  
l'avenir**

Ministère de l'Écologie, de l'Énergie, du Développement durable et de la Mer  
en charge des Technologies vertes et des Négociations sur le climat

[www.developpement-durable.gouv.fr](http://www.developpement-durable.gouv.fr)



# CETMEF

- Maritime and fluvial technical service of French authorities
  - Diffusion and promotion of different maritime and fluvial technical items
  - Works about
    - Marine signalisation
    - Vessel traffic system
    - Harbour concern
    - Flood forecast
    - Evolution of coast morphology
    - ...
    - Evaluation of sea state parameters
  - Main manager of in situ swell measurement since 1972

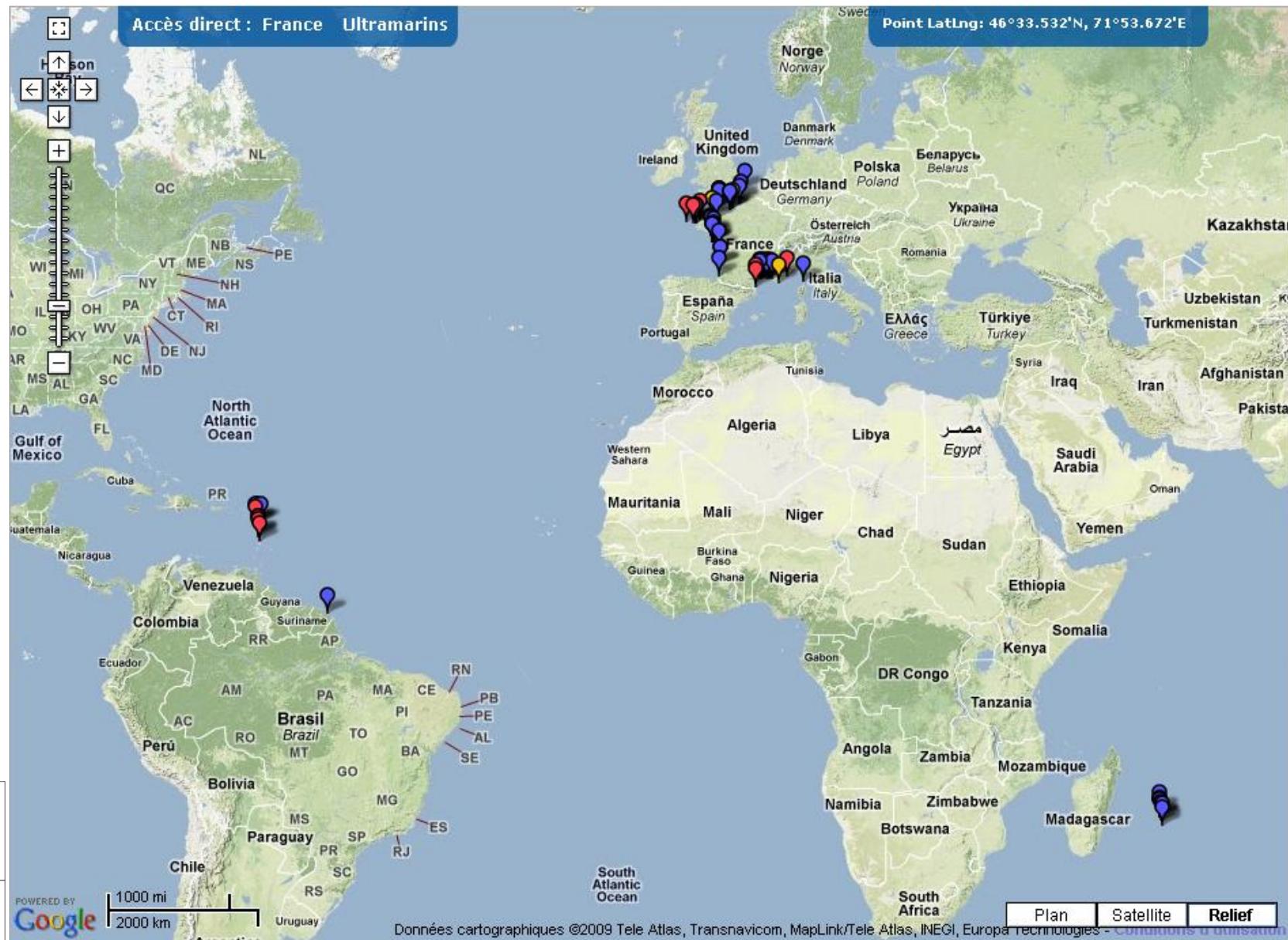


# CANDHIS

- CANDHIS
  - French national centre for archiving swell measurements
- Refers both to :
  - The national network of coastal measurements of waves
  - Website
  - Database archiving measures
- Purpose of the programme
  - To maintain a long duration wave measurement network along the coast of the French mother and overseas territories coasts and to centralize the French wave data
- Archiving of 65 site of measurement
  - Every days
  - On server, data tape magnetic, strongbox

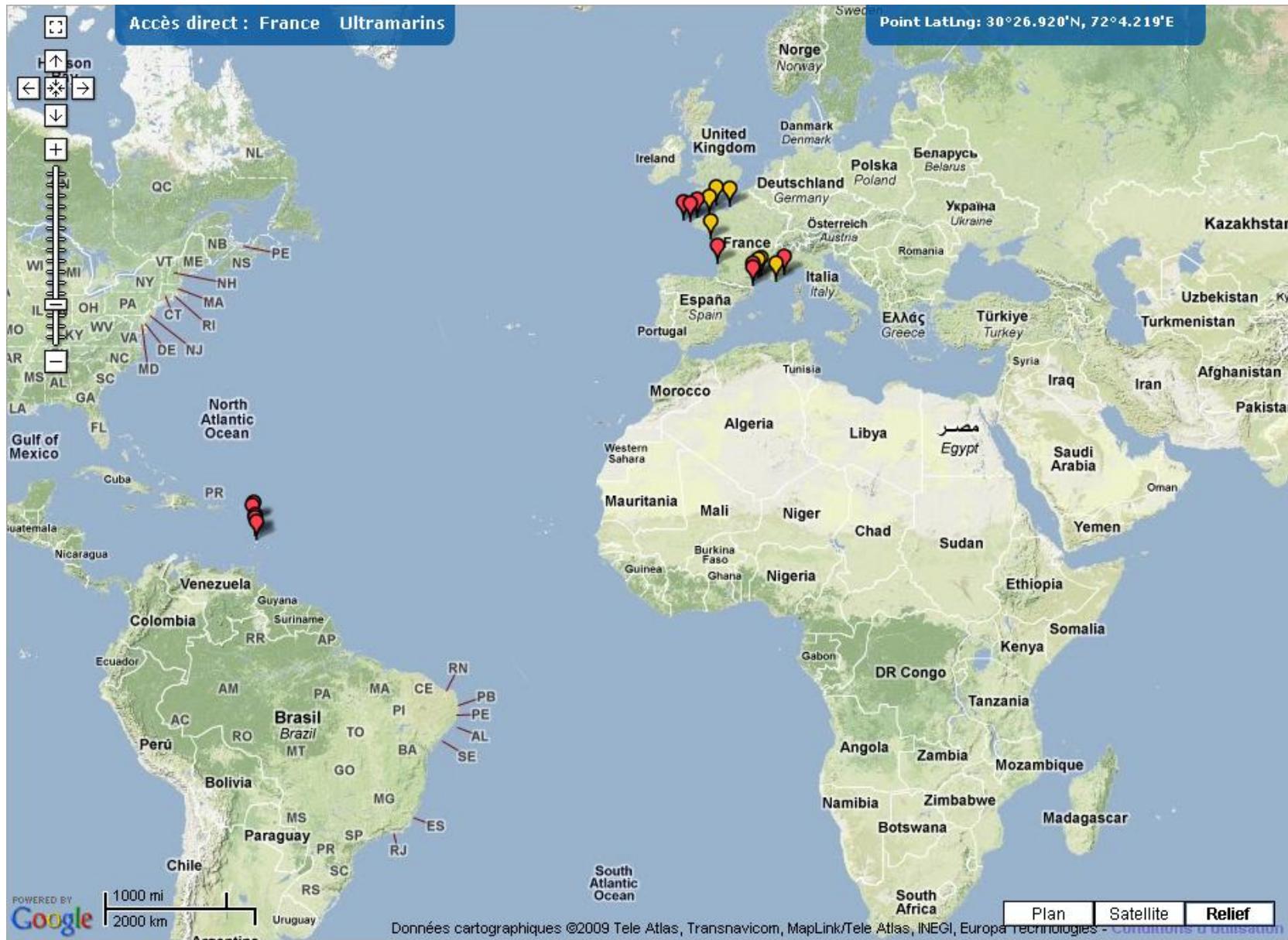


# Archiving of 65 sites of measurement old and actual



# 19 real time data buoys

## Directional wave buoys



# Quality of time series data

Control of order of magnitude of sea state parameters

- Number of waves > 75 (for 30mn of time series)
- Vertical acceleration < 0,5 g
- Hmax < 3 H1/3
- TH1/3 < 30s

Test of normality

- Control of distribution of H1/3 with kurtosis and skewness tests
  - -0.3 < Skew < +0.3
  - Kurt < 5

Introduction of a quality factor

- Percentage of wave removed
- Result of test of normality



# Diffusion of information

Internet Website : <http://candhis.cetmef.developpement-durable.gouv.fr/>

The screenshot shows the homepage of the CANDHIS website. At the top left is the logo of the French Ministry for Ecology, Sustainable Development and Energy. The main title "CANDHIS" is prominently displayed in large blue and red letters. To the right, the text "National Center for Archiving Swell Measurements" is written. Below the title is a navigation bar with links for "Home", "Chart of campaigns", and "Documentation". The main content area features a large image of a yellow spherical buoy floating in the ocean, connected by a cable to a vertical pole. To the right of the image is a text block explaining what CANDHIS is and the types of data available. A sidebar on the right lists "ACTUALITES" (news) items, each with a title and a brief description. The footer contains the French national motto "Liberté • Égalité • Fraternité" and the logo of the Ministry of Ecology, Sustainable Development and Energy.

**CANDHIS**

National Center for Archiving  
Swell Measurements

Home Chart of campaigns Documentation

Welcome to the National Center for Archiving Swell Measurements

**CANDHIS (National Center for Archiving Swell Measurements)** refers both to the national network of coastal in situ measurements of waves, the website and database archiving measures.

The information available on this site are:

- Real-time data
- Monthly evolution of the waves heights
- Statistical data (histograms and correlograms)

All the available data and the cautions of use are detailed in the "documentation".

**ACTUALITES**

>> Ile d'Yeu Nord <<  
Problème de réception des mesures de la bouée. Les données ne sont plus disponibles. [25/08/09]

>> Cherbourg <<  
En raison d'un arrêt du houlographe pour maintenance annuelle, les données ne sont plus accessibles. [24/08/09]

>> Espiguette <<  
Suite à un problème technique, les données du houlographe ne sont plus accessibles. [24/08/09]

>> Antifer <<  
Les données ne sont plus disponibles, suite au déradage de la bouée. [07/08/09]

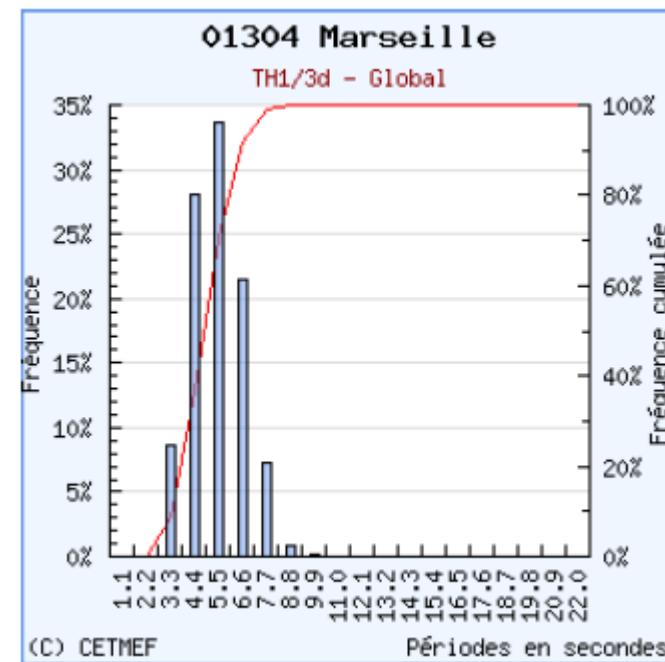
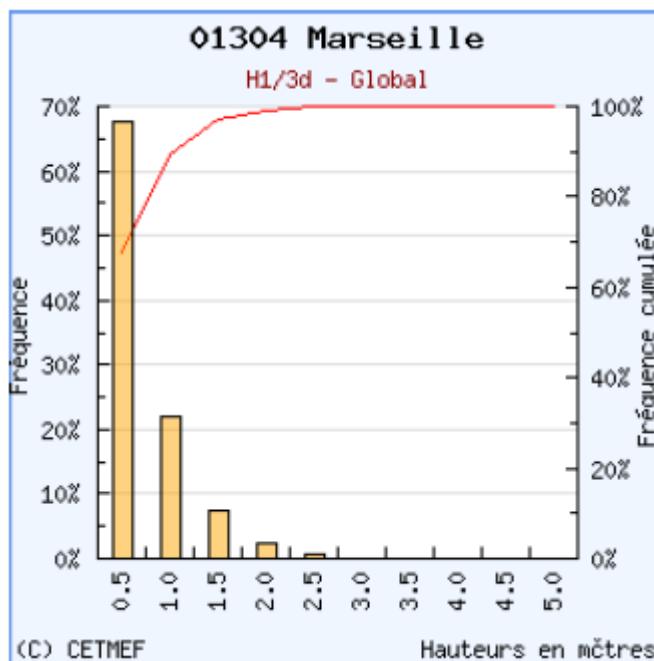
>> Sainte-Lucie <<  
Remise en service du houlographe. [06/08/09]

Liberé • Égalité • Fraternité  
RÉPUBLIQUE FRANÇAISE

Ministère de l'Énergie, de l'Énergie,  
du Développement durable  
et de la Mer

# Diffusion of information

Histograms :  $H_{1/3}$ ,  $H_{1/10}$ ,  $H_{\max}$ ,  $T_{H1/3}$ ,  $T_{\text{avd a}}$  and  $T_{H\max}$



# Diffusion of information

Correlograms :  $H_{m0} - T_{02}$ ,  $H_{m0} - T_p$ ,  $H_{m0} - T_E$  and  $H_{m0} - \text{Dir}$

**Corrélogramme - Hm0/Tp - GLOBAL**

(Hauteur significative spectrales des vagues / Période de pic barycentrique)

hm0 (m)	tp (Secondes)																				Total
0	1.4	2.8	4.2	5.6	7	8.4	9.8	11.2	12.6	14	15.4	16.8	18.2	19.6	21	22.4	23.8	25.2	26.6	28	
0.5		1044	1783	3369	2261	1059	644	61	14	7	1										10243
1		40	315	1388	2078	264	90	5	3												4183
1.5			13	99	1141	315	14														1582
2				1	235	228	17	5													486
2.5					17	138	12	4											1		172
3						1	26	8	1									1			35
3.5							3	7	1												11
4								2													2
Total		1084	2111	4857	5733	2033	792	77	17	7	1						1		1		

Les valeurs du tableau sont exprimées en nombre d'éléments - Les cases vides correspondent à des valeurs nulles.

Code des couleurs

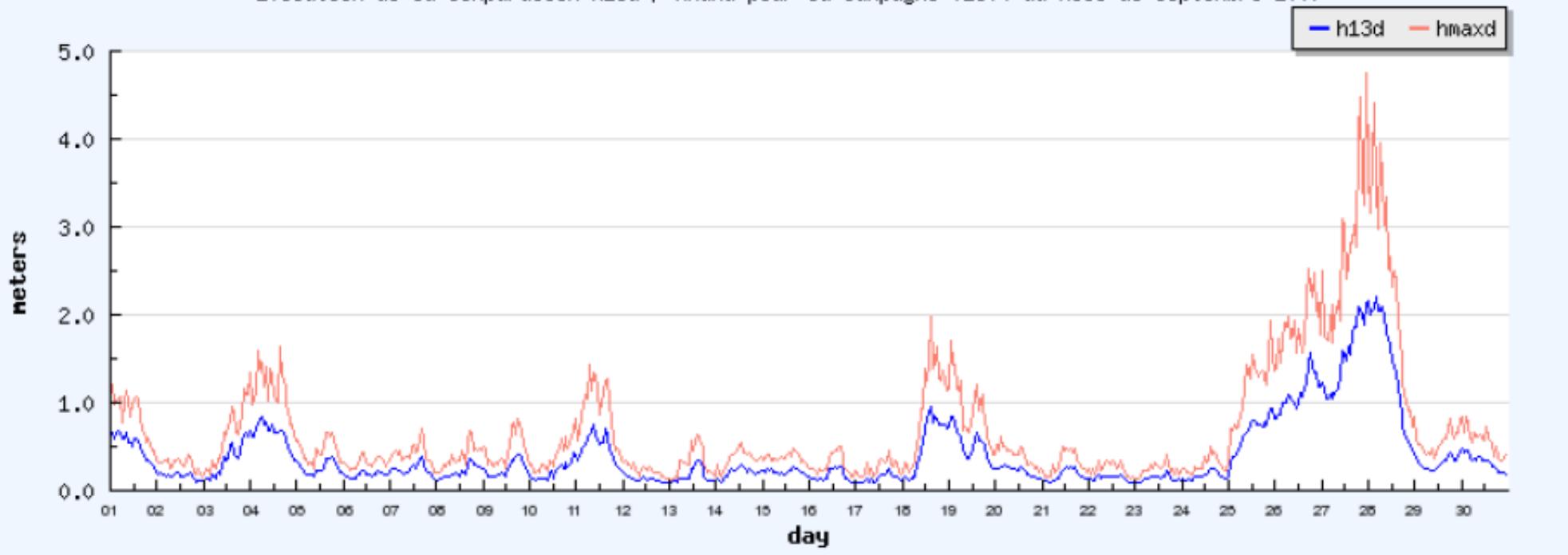
>= 10 %	>= 30 %	>= 50 %
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# Diffusion of information

Monthly evolution of parameters :  $H_{1/3}$ ,  $T_{H1/3}$ ,  $H_{m0}$  and  $H_{max}$

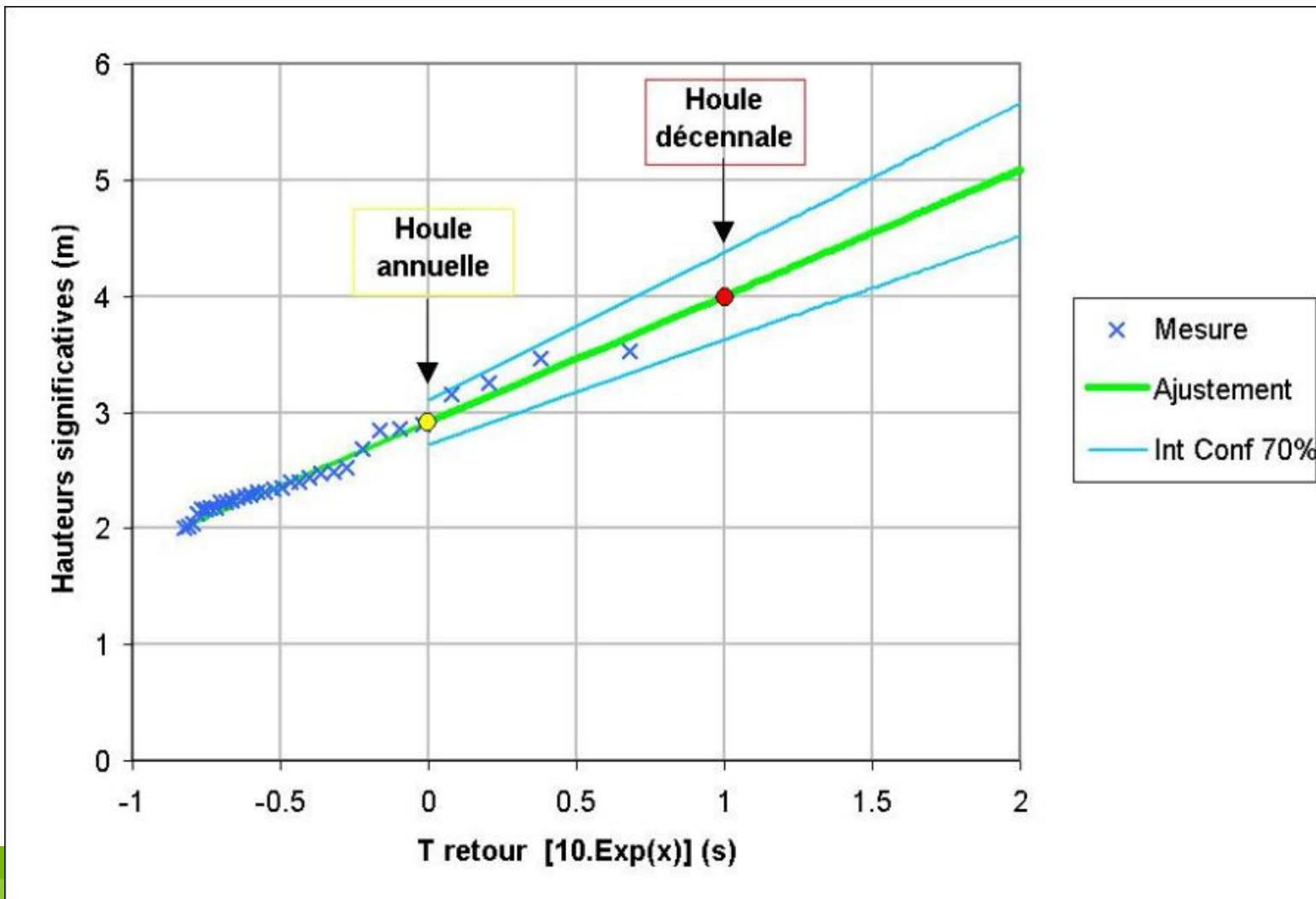
Evolution de la comparaison  $h13d$  /  $hmaxd$  pour la campagne 01304 au mois de Septembre 2007



# Diffusion of information Evolution

Determination of return period of extreme values

- Software Astex (EDF/LNHE)

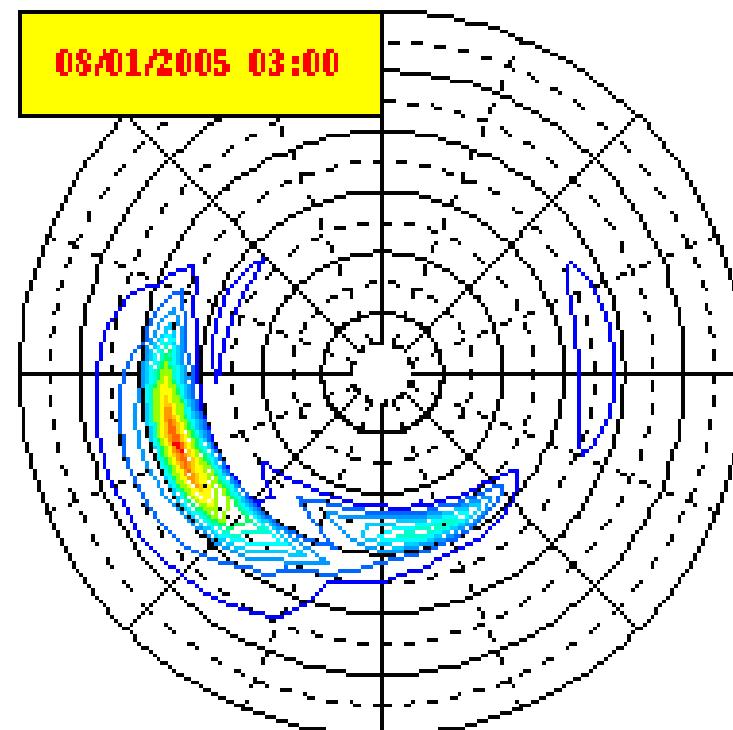
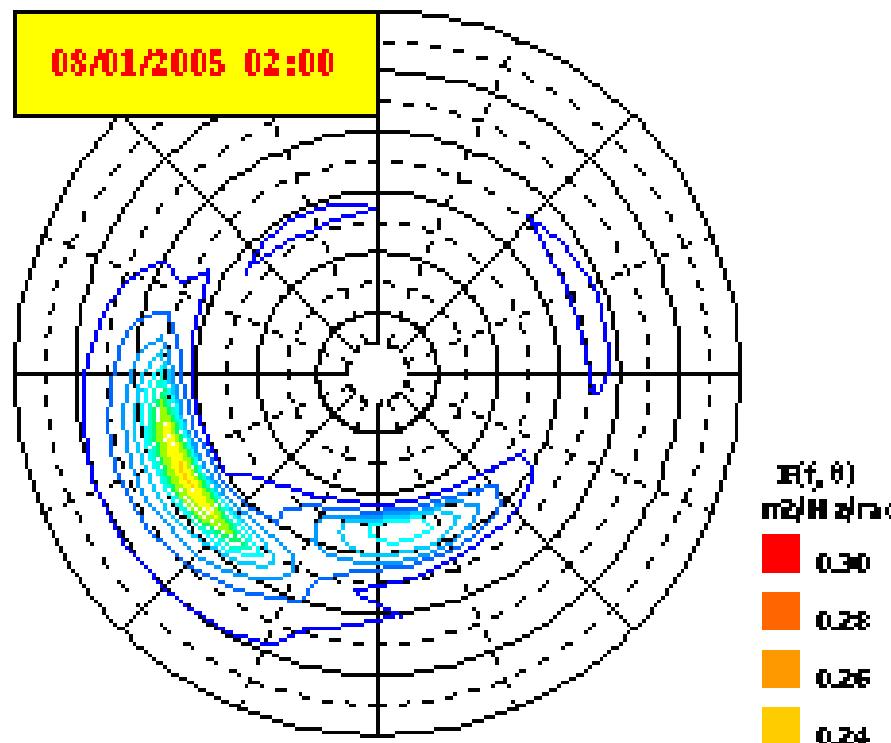
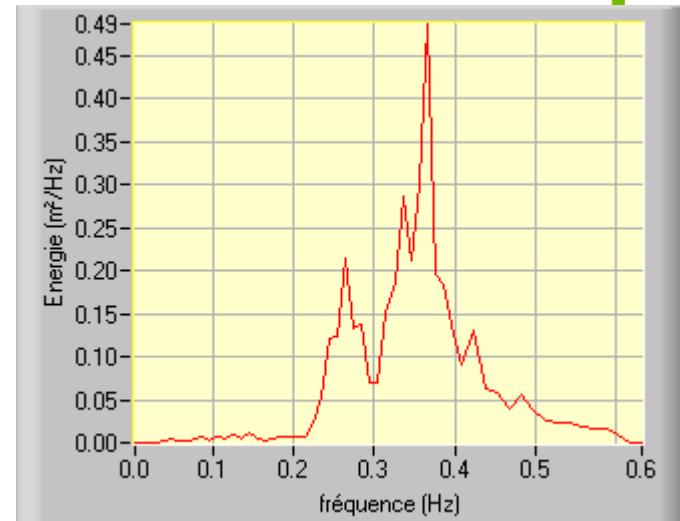


# Diffusion of information Evolution

Directional spectrum

Identification of wave system

- Software Padine (EDF/LNHE & CETMEF)



# THANK YOU

**CANDHIS**

**candhis.cetmef@developpement-durable.gouv.fr**

- Manager : Xavier KERGADALLAN / CETMEF
- Person in charge of the network : Guy AMIS / CETMEF
- Person in charge of treatment of measures : Alain LE BERRE / CETMEF
- Identification of wave system, analysis of extreme values : Michel BENOIT / EDF

