« *The good man and the sea* »

Hommage à Jean-Michel Lefèvre

A dense career dedicated to waves

First step in research on oceanic vertical mixing at CNRM in 1987

From VAG to MFWAM models (strong expertise and links to related topics, member of expert team at WMO)

Participation to experimental compaigns and research projects (SEMAPHORE, FETCH, kick-off of MERCATOR,COST714, MEDATLAS, MAXWAVE, WISE group, HYMEX, MYWAVE....)
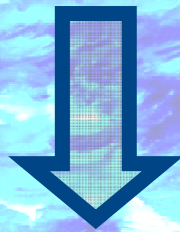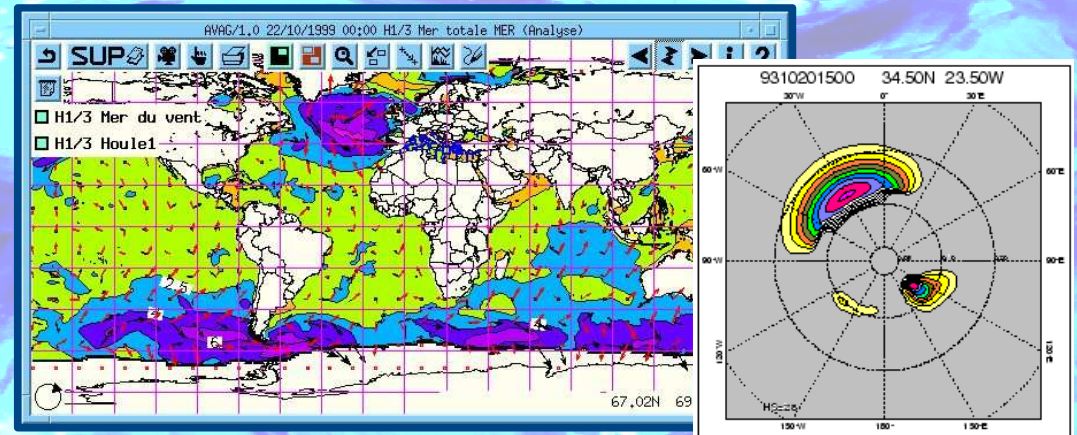
Diversity of research topics. Among them :

- Freak waves (wave tank Trondheim)
- Sismic noise application to waves
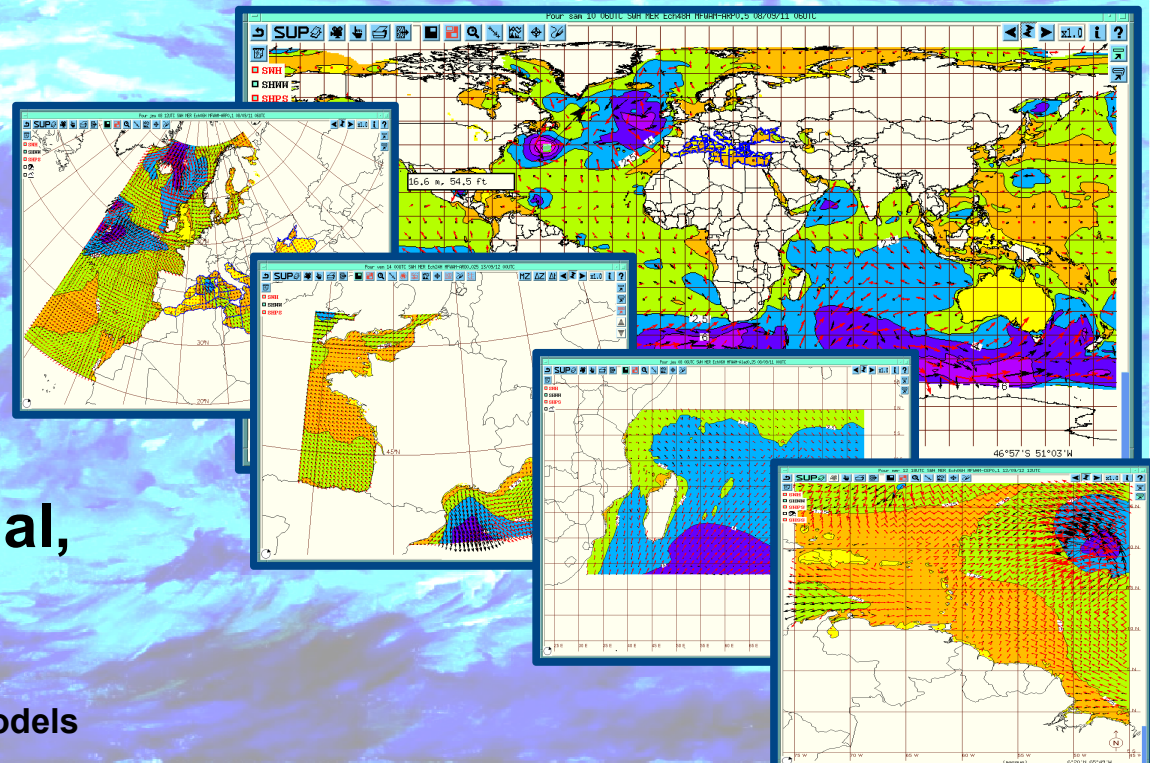**- Coupling ocean-atmosphere**

Big progresses initiated and developed by Jean-Michel at Météo-France

Yesterday, 2 VAG models : VAGMED, VAGATL

Today, 22 MFWAM models (new physics : collaboration Shom/Ifremer, global, regional, high resolution AROME...)
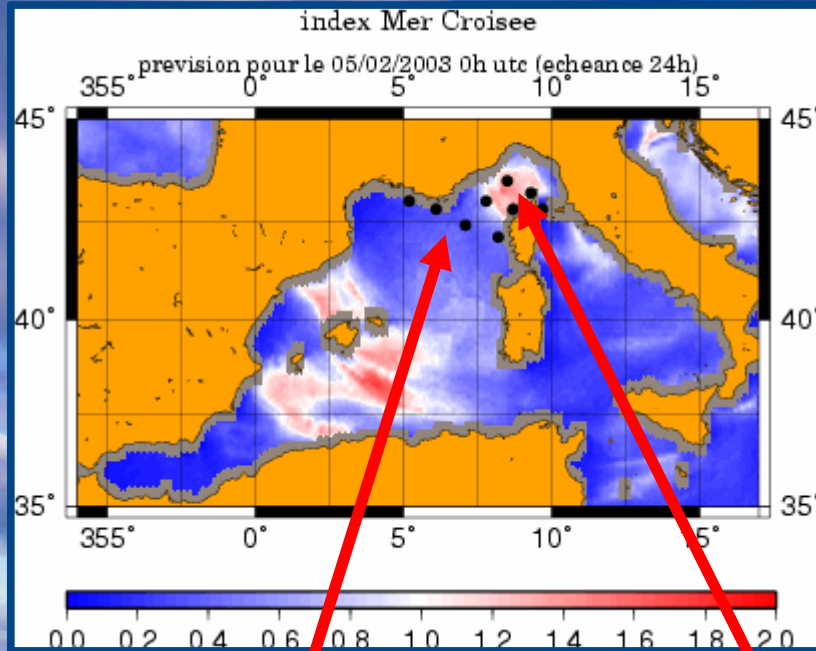
Standard fields and data from operational numerical models

Work of Jean-Michel on dangerous sea state
and rogue waves (MAXWAVE)
Cross Sea and Steepness index

index Mer Croisee

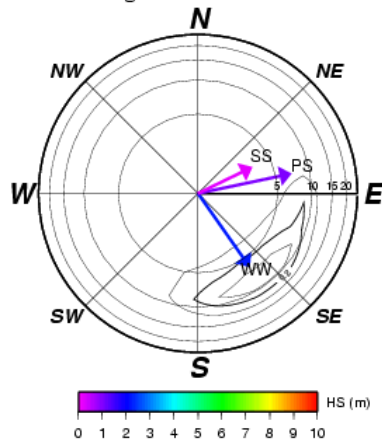prevision pour le 05/02/2003 0h utc (echeance 24h)

spectre VAG normalisé
Modèle COTIER - 04/02/2003 00h utc échéance 24h
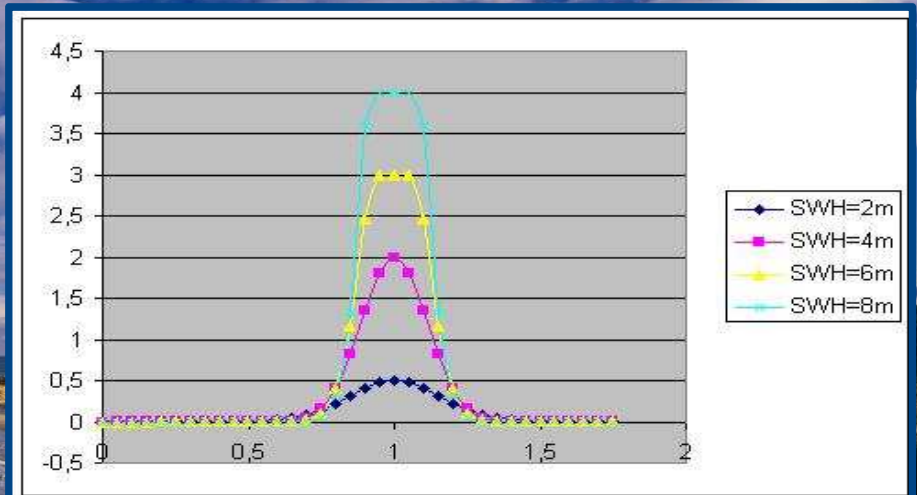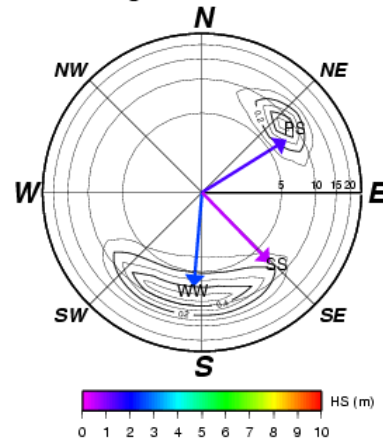longitude: 5.2 - latitude: 43.0
Energie maximale: 4.217

spectre VAG normalisé
Modèle COTIER - 04/02/2003 00h utc échéance 24h
longitude: 8.5 - latitude: 43.5
Energie maximale: 4.217

HS (m)
0 1 2 3 4 5 6 7 8 9 10

SWH=2m
SWH=4m
SWH=6m
SWH=8m

Spread > 0 (One direction) < 1,41 (omnidirectionnal).

« Cross sea » when spread around 1

Spread is combined with Hs to define an index.

index=(SWH/a)*exp(-10.*(spread-b)**2), a, b to be ajusted

Cross Sea Index as a function of mean directional spread and Hs for a=2 and b=1
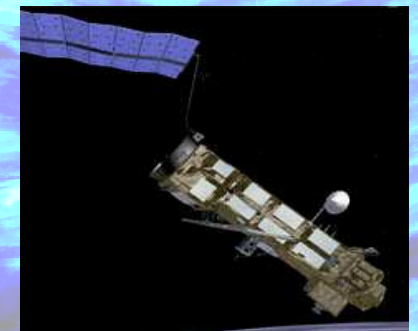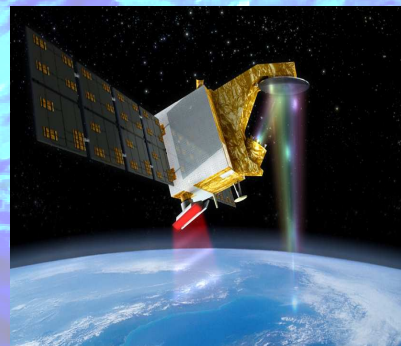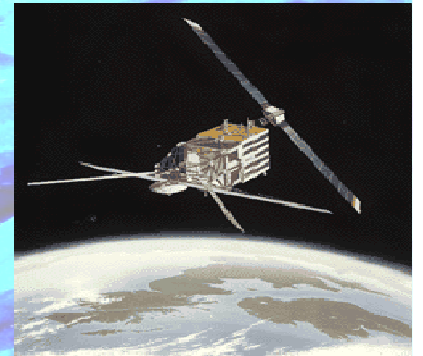
Use of wave satellite data (altimeters and SAR)

Strong collaboration with CNES teams
SWT and OSTST member since 1990

Assimilation in operational wave models
since 1998 (Topex/Poseidon, ERS1-2, Jason-1 & 2,
Envisat-Ra2 and SAR, SARAL...)

From VAGSAT to CFOSAT
(science team member)

Topex/Poseïdon
Verification workshop, February 22-25, 1993

Jean-Michel has at heart to share his knowledge

Training and lectures organised by WMO, EUMETSAT...

Teaching at Ecole Nationale de la Météorologie (Météo-France)

Supervising, supporting and valued the work of young scientist

Lecturer:
Jean-Michel Lefevre

Satellite Altimeter SWH and wi

- successive samples at ~ 6 km step along the ground track (1
waveforms)
- NOT an imager/mapper, narrow ground track with 10 and 3
- Polar orbit with 66-98 deg. Inclination, non sun synchronou

THE GOOD
Accurate and well calibrated
High spatial resolution (<10 km)
Global
All (most) weather
Long-time series (dates back to 80s)
Multi-satellites likely 2010-2020

THE BAD
No swath
Limited daily coverage for forecast
applications
Strong rain can affect accuracy/
availability
Not good for very low sea states
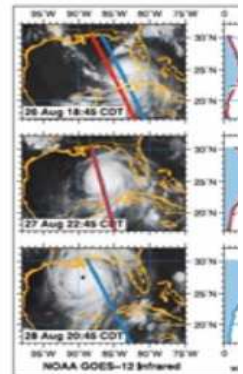
EUMETSAT/IODE Training Course
Applications of Satellite Wind and Wave Products for Marine Foreca
5 - 9 December 2011, Oostende, Belgium

« *The good man and the sea* »

Exceptional human skills :

sense of humour and cheerfulness, modesty, curiosity, enthousiasm...

easy interaction with all scientific partners...

Lucky are those who had the chance to deal with him.

« *The good man and the sea* »

The 5th April 2014, after one
Year of brave fight, you left us.

His wife and his sons
miss him deeply…

We miss you too, we will keep the
tradition of « good mood and
modesty »

Jean-Michel, you will go
on your trip on the waves
forever…