

MAXSS - Marine Atmosphere eXtreme Satellite Synergy workshop

3 - 5 April 2023
Centre Ifremer de Bretagne, France

Agenda

The meeting will be a hybrid event. All lectures will be presented via Zoom (a link and password will be provided before the meeting starts via the MAXSS e-mail list. Please do not spread the link on social networks in order to avoid zoom bombings). Some lectures may be given by participants attending remotely (marked as “**R**”).

All times listed below are in CEST (UTC+2).

Meeting takes place in the Lucien Laubier auditorium

Monday, April 3rd

- **8:00 – 8:30** Welcome on site
- **08:45- 8:55** : Welcome B. CHAPRON
- **08:55- 09:05** : Welcome M-H .RIO

MAXSS products/Introduction/definition

- **9:05 -9 :30** : J-F Piollé/N. Reul (MAXSS products)
- **9:30 – 9:45** : C. De Boyer (Interior ocean measurements)
- **9:50 – 10:05** : M. Portabella (multi-satellite calibration strategy)
- **10 :05 – 10:20** : F. Collard/J. Tenerelli (MAXSS Wind Blend products: methodology)
- **10:20 – 10:30** : M. Portabella (multi-satellite product validation)

10:30 - 10:55 Coffee break

- **11 :00 – 11:10** : N. Reul/A. Mouche (High Res SAR vs Medium and Low Res Passive/Active sensors)
- **11:10 – 11:35** : L. Vinour (MAXSS Value-Added products)
- **11:35 – 11:55** : H. Li (SAR Doppler estimates under extremes)
- **R 11:55 – 12:10** : N. Tran (Altimeter under extremes)
- **12:10– 12:35**: A. Stoffelen (Extreme Winds and new algorithms)
- **12:35 – 12 :50** : F. Collard (Visual Demo)

13:00- 14:00 Lunch break

User needs/Scientific exploitation and applications

- **R 14:00 – 14:20** : A. Lowndes (NVIDIA data-driven ERA-5 analysis)
- **14:20 – 14 :40** : B. Furevik (Polar Lows Reanalysis)
- **14:40 – 15:00** : F. Desbiolles (Large scale control of extre-tropical storm tracks)
- **R 15:00 – 15: 20** : M. Hell (Southern Ocean Extreme Wind statistics: effects on resonant swell generation under storms)
- **15:40 – 16:00** : L.Pineau-Guillou (Storm surges: the Sea Level response to extreme weather events)

16:00 – 16:25 Coffee break

- **16:30 – 16:45** : R. Husson (Topic/status of monitoring ocean-surface extreme winds from Space)
- **R 16:45 – 17:10** : S. Langlade (Météo-France, La Réunion)
- **17:10 – 17:30** : J.-F. Filipot (France-Energies-Marines)
- **R 17:30 – 17:50** : N. Bruneau (Reask.Earth)
- **17:50 -18:10** : P. Lecointre (Descartesunderwriting)
- **R 18:10 – 18:40** : J. Knaff (Operational tropical cyclone surface wind monitoring: improvements since the 2016 High Wind workshop)

- **18:45** : end of the first day meeting

19:00 : Diner (at PNBI building just next to Ifremer Centre)

Tuesday, April 4th

Extreme Waves and Waves in Extremes

- **8:30 : Welcome**
- **R 8:40 – 9:00 : F. Dias/A. Disant (High Wave project)**
- **9:00 -9:20 : D. Hauser (SWIM Tropical Cyclones diagnosis)**
- **9:20 – 9:35 : M. De Carlo (Altimeter and SWIM high wave observations)**
- **9:35 – 9:50 : C. Pouplin (multi-platform observations)**
- **R 9:50 – 10:10 : M. Yurovskaya (Arctic abnormal waves)**

10:10 - 10:35 Coffee break

- **10:40 – 11: 00 : L. Aouf (On the improvement of wave forecasting in extreme cyclonic conditions : CFOSAT-SWIM directional wave observations)**
- **R 11:00 – 11:20 : J. Bidlot (Recent and future developments at ECMWF)**
- **R 11:20 – 11:35 : A. Laloue (Extreme Wave statistics from altimeter measurements)**
- **R 11:35 – 11:50 : V. Cheshm Siyahi (Extra-Tropical extreme waves)**
- **11:50 - 12: 05: P.-Y. Colson (Tropical Cyclone impact on ageostrophic motion of the ocean)**
- **12:05 – 12:20 : A. Avenas (Objective reanalyses of Tropical Cyclones surface wind structure with combined satellite sensors)**
- **R 12:20 – 12:50 : W. Perrie/B. Zhang (Tropical Cyclone Remote Sensing Past, Present and Future)**

13:00- 14:00 Lunch break

Estimation of extreme winds

- **R** 14:00 – 14:30 : H. Holbach/M. Bourassa (Strengths and weaknesses of calibrating remotely sensed winds with buoys and dropsondes/Current status of the SFMR algorithm update: high wind/high rain errors)
- 14:30 – 15:05 : P. Chang/J. Jelenak/J. Sapp (NOAA P3 newest results)
- 15:05-15h20 S. Brummer (Parametrizations under extremes)
- **R** 15:20 – 15:50 : Y. Troitskaya/O. Ermakova (Microrphysics of the air-sea coupling at high wind: dynamics and thermodynamics of severe sea storms/On retrieval of the atmospheric boundary layer dynamic parameter based on co-located measurements of the SFMR and NOAA GPS dropsondes in hurricane)
- **R** 15:50 – 16:10 : R. Foster (Tropical Cyclone boundary layer mean winds from SAR)

16:10 - 16:25 Coffee break

Actual and future satellite missions

- 16:25 – 16:40 : F. Said (CyGNSS: A performance comparison between CyGNSS and MAXSS globally and within tropical cyclones)
- 16:40 – 16:55 : A. Stoffelen (SCA)
- **R** 16:55 – 17:15 : S. Gille (ODYSEA)
- 17:00 -17:15 : M. Portabella (SEASTAR)
- 17:15 – 17:30 : N. Reul (CIMR)
- 17:30 – 18:00 : B. Rommen/P. Dekker-Lopez (Harmony)

- 18:30 : end of the second day meeting

Wednesday, April 5th

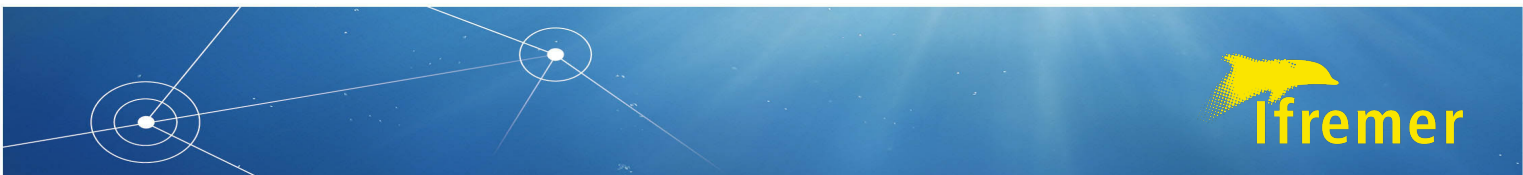
Science applications

- 08:15 :Welcome
- 08:30 – 08:50 : T. Ma (East Asian monsoon: natural shield against super typhoon)
- 08:50 – 9:10 : N. Reul (Tropical cyclone wake Analysis)
- 9:10 – 9:25 : C. Combot (Tropical cyclone wake: scaling laws)
- **R** 09:25 – 9:50 : J. Shutler (CO2)
- 9:50 – 10:05 : A. Payez (Decadal extreme winds)
- 10:05 – 10:20 : F. Collard (WOC : Global Current project)

10:20 - 10:45 Coffee break

Plenary discussion and way-forward

- **R** 10:50 – 11:00 : D. Fernandez (ESA View)
- 11:00 – 11:20 : Y. Drillet (EDITO)
- **R** 11:20 – 11:45 : R. Randriamampianina (DestinE On Demand Extremes Digital Twin)
- 11:45 – 12:45 : Open Discussion



13:00 – 14:00 Lunch break

Closure of the workshop

Afternoon : internal MAXSS meeting (14:00 - 16:00)

Abstracts

Topic /Methods and models for retrieving high winds from satellite observing systems
Wang Zhixiong (1), Stoffelen ad (2), Shang jian (3), Dou fangli (3), Li zhen (2), Zou juhong (4) A new C-band HH geophysical model function derived from FY-3E/WindRAD scatterometer measurements improving wind retrieval
Ermakova olga (1), EvgenyÂ poplavsky (1), RusakovÂ nikita (1), TroitskayaÂ yuliya (1) On retrieval of the atmospheric boundary layer dynamic parameters based on collocated measurements of the SFMR and NOAA GPS dropwindsondes in hurricane
Combot clément (1), Chapron bertrand (1), Quilfen yves (1), Mouche alexis (1), Tournadre jean (1) Scaling of the sea surface anomalies from Tropical cyclone cold wake: synergy of MW satellite observations and Argo fleet.
Payez alexandre (1), Stoffelen ad (1), Giesen rianne (1) Studying decadal extreme wind-speed trends, using Extreme Value Theory
Perrie william Tropical Cyclone Remote Sensing: From Science to Applications
Gille Sarah Winds and currents from ODYSEA: Opportunities for measuring extremes
Topic / Ocean surface wind and wave products, synergies, and validation
Furevik birgitte (1), Breivik yvind (1), Haakenstad hilde (1), Carasco ana (1) A nonhydrostatic 3-km atmosphere and wave hindcast of the North-east Atlantic: Validation, examples and further developments
Marquart robin (1), Chapron bertrand (1), Mouche alexis (1) Analysis of SAR ocean scenes texture for wind direction retrieval and generation of synthetic images
Avenas arthur (1), Mouche alexis (1), Chapron bertrand (1), Tandeo pierre (2), Knaff john Fablet ronan (2) High resolution ocean surface wind fields of Tropical Cyclones from combined satellite sensors
Kudryavtsev vladimir (1), Cheshm Siyahi vahid (1), Yurovskaya maria , Chapron bertrand (2) On Surface Waves in Arctic Seas : Satellite Observations and Simulations
Aouf Lotfi On the improvement of wave forecasting in extreme cyclonic conditions : thanks to CFOSAT directional wave observations
Wang chen (1), Mouche alexis (2), Li huimin (1), Chapron bertrand (2) Assessment of wind retrieval from the global Sentinel-1 wave mode ocean SAR images
Hell Momme

Southern Ocean Extreme Wind statistics and their effect on resonant Swell Generation under Storms
Dias frederic (1) , Disant arnaud The HIGHWAVE project
Laloue alice (1) , Ghantous malek (1), Faugere yannice (1) Extreme significant wave height analysis from satellite altimetry (2002-2020).
R. Husson , A. Mouche, N. Miranda, L. Martino, P. Potin, F. Soulat, M.H. Rio, B. Chapron SAR-derived Tropical Cyclone products - towards a global service Topic/ Status of monitoring ocean-surface extreme winds from space: current and future instruments
Pichugin mikhail (1) , Gurvich irina (1), Baranyuk anastasiya (1), Khazanova elena (1) Analysis of extreme winds in intense extratropical cyclones over the North Pacific based on satellite observations from SMAP
Pascual Daniel , King Jennifer Analysis of the upcoming CYGNSS storm-centric product using MAXSS Atlas
Li huimin (1) , Mouche alexis , Wang chen , Zhang biao, He yijun, Chapron bertrand Direct ocean surface velocity measurements from space in tropical cyclones
Rommen Bjorn Mission status overview of ESA's Earth Explorer 10 Harmony
Lopez Dekker paco (1) , Kleinherenbrink marcel (1), Andreas theodosiou (1), Chapron bertrand Pasquero Claudia, Rommen bjorn Observing Ocean-Atmosphere extremes with the Harmony mission
Stoffelen ad (1) , Ni weicheng , Zhao ke , Xu xingou Extreme winds from sar and their use for ku-band and c-band wind scatterometer product enhancement
Drillet Yann , Cailleau Sylvain, Samson Guillaume, Law Chune Stephane, Garric Gilles, Ruggiero Giovanni Current use and future needs of wind fields for operational ocean forecasts
Knaff John A. , Sampson Charles R., Surratt Melinda Operational tropical cyclone surface wind monitoring: Improvements since the 2016 High Wind
Topic / Earth observation
Lowndes alison Towards real-time monitoring & prediction of Earth Systems

De Boyer Montégut clément
Collocation of Argo profiler floats with cyclone tracks : methodology and first analyses of cyclones impact on ocean subsurface
Tran ngan (1), Mrad mohamed , Piollé jean-François
Observations of tropical cyclones with altimetry
Hauser Daniele
Wave field within Tropical Cyclones From the Spectral Observation of the CFOSAT/SWIM spaceborne Instrument
Yurovskaya maria (1) (2), Kudryavstev vladimir, Chapron bertrand
The Probability of Abnormally High Waves in the Arctic Seas from Long-term Altimetry Measurements
Randriamampianina Roger
Destination Earth On-Demand Extremes Digital Twin
Topic/ Applications for ocean-atmosphere interactions
Vinour léo (1), Mouche alexis (2), Jullien swen (2)
Diagnosing Tropical Cyclone intensity variations from their internal structure
Renault lionel (1), Arsouze thomas (2), Desbiolles fabien (3)
From a Local Air-Sea Interaction to a Large-Scale Control of Extra-Tropical Storm Tracks
Troitskaya yuliya (1), Sergeev daniil (1), Kandaurov alexander (1), Bopp maximilian (2)
Microphysics of the air-sea coupling at high winds and its role in the dynamics and thermodynamics of severe sea storms
Pineau-Guillou lucia
Storm surges: the sea level response to extreme weather events
Ma tian (1) (2), Yu weidong (1), Speich sabrina (2)
The East Asian monsoon provides a natural shield against the super typhoon along China's coast
Colson pierre-Yves (1), Le Goff clément (1), Mouche alexis (2), Chapron bertrand (2)
Tropical Cyclones Impact on the ageostrophic motion of the ocean. Two cases studies using AIS derived currents
Bourdin Stella
Tropical Cyclones in global reanalyses and climate models
Topic / No information
Lecointre Pierre; Xing Victor; Tong hervé.; cheikh kais

