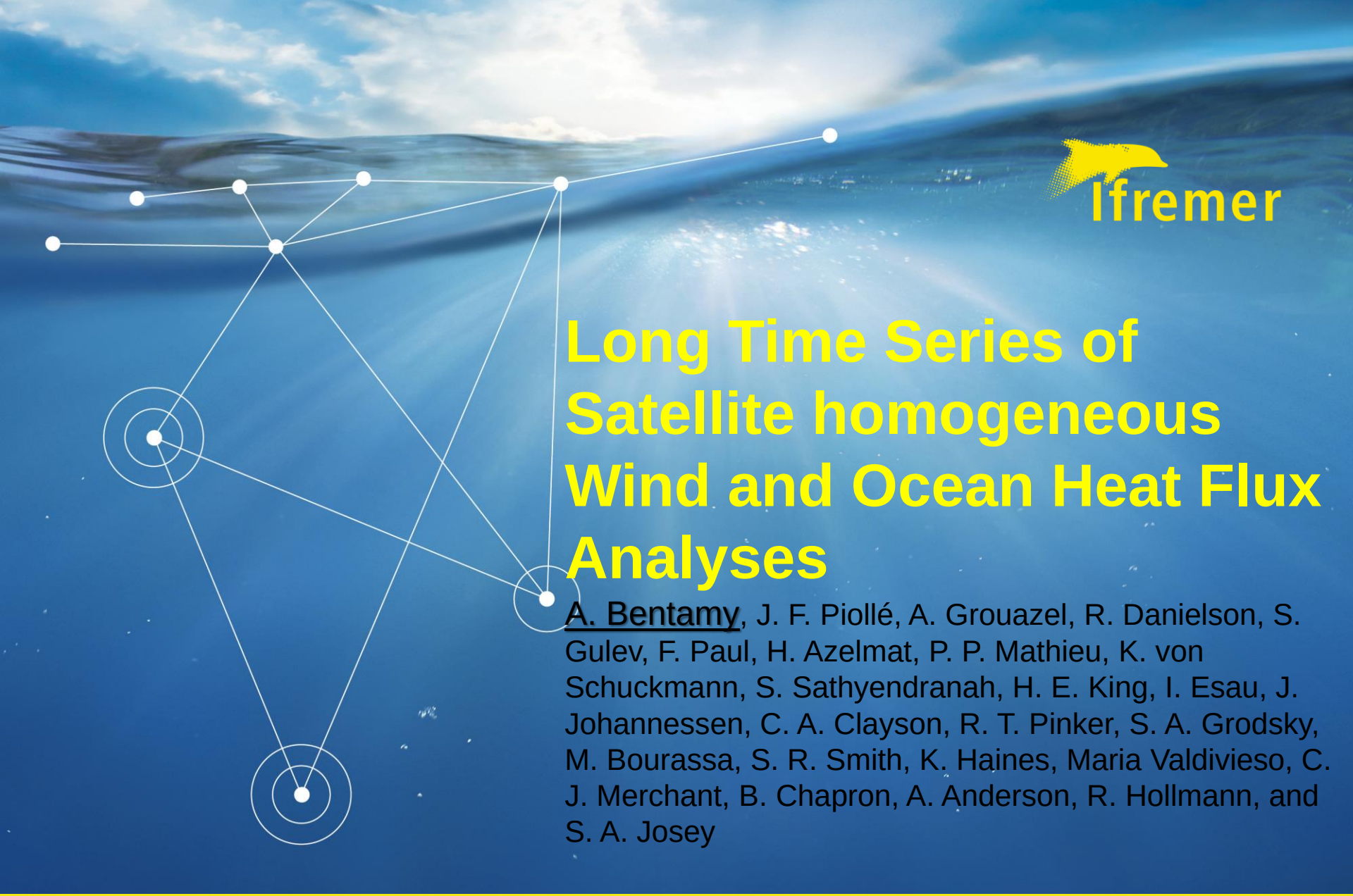


Long Time Series of Satellite homogeneous Wind and Ocean Heat Flux Analyses

A. Bentamy, J. F. Piollé, A. Grouazel, R. Danielson, S. Gulev, F. Paul, H. Azelmat, P. P. Mathieu, K. von Schuckmann, S. Sathyendranah, H. E. King, I. Esau, J. Johannessen, C. A. Clayson, R. T. Pinker, S. A. Grodsky, M. Bourassa, S. R. Smith, K. Haines, Maria Valdivieso, C. J. Merchant, B. Chapron, A. Anderson, R. Hollmann, and S. A. Josey

Operational Satellite Oceanography Symposium (OSOS) College Park USA 17 – 20 June 2019

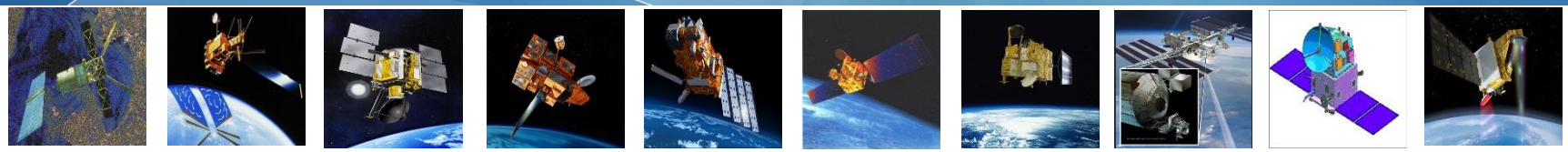
Long Time Series of Satellite homogeneous Wind and Ocean Heat Flux Analyses

Operational Satellite Oceanography Symposium (OSOS) College Park USA 17 – 20 June 2019

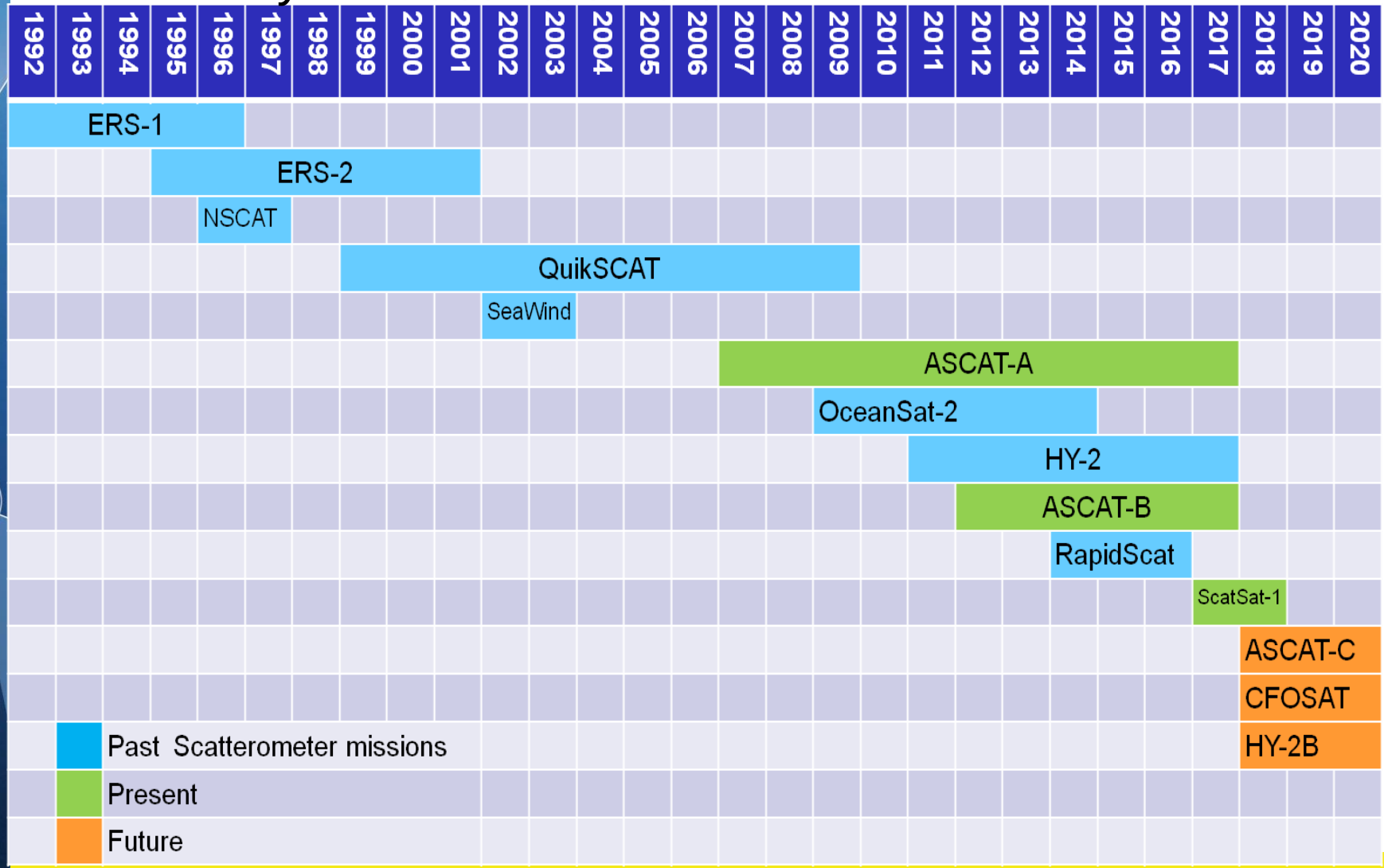
Motivation : Meeting Requirements, Recommendations, and priorities

- WCRP, 2013: Report from the World Climate Research Program (WCRP). May 2013 (*http://www.wmo.int/pages/prog/sat/meetings/documents/ET-SUP-7_Doc_08-03_WCRP.pdf*)
- CLIVAR/ESA scientific consultation workshop on: “Earth Observation Measurement Constraints on Ocean Heat Budget”. July 2013
- GCOS, 2016: The Global Observing System for Climate Implementation Needs (*https://unfccc.int/sites/default/files/gcos_ip_10oct2016.pdf*)
- WOAP, 2012: Report action plan for WCRP activities on surface fluxes, WCRP informal report (*www.wcrp-climate.org/documents/woap_fluxes_report_01_2012.pdf*)
- Yu, L., K. Haines, M. Bourassa, S. Gulev, S. Josey, T. Lee, M. Cronin, A. Kumar, 2012: CLIVAR GSOP WHOI Workshop report on Ocean Syntheses and Surface Flux Evaluation Woods Hole, Massachusetts, 27-30 November 2012
- Oke, PR, O'Kane, TJ 2011, Observing system design and assessment, in A Schiller, GB Brassington (eds.), Operational Oceanography in the 21st Century, Springer, Amsterdam, pp.123-151
- WCRP Grand Challenges (*www.wcrp-climate.org/grand-challenges/grand-challenges-overview*)
- Pinker R. T., A. Bentamy, K. B. Katsaros, Y. Ma, and C. Li, 2014: Estimates of net heat fluxes over the Atlantic Ocean. J. Geophy. Res. VOL. 119, 1–18, doi:10.1002/2013JC009386, 2014
- Desbiolles Fabien, Blanke Bruno, Bentamy Abderrahim, Roy C., 2016: Response of the Southern Benguela upwelling system to fine-scale modifications of the coastal wind . *Journal Of Marine Systems* , 156, 46-55 .
- Le Traon P. Y. and Co-authors , 2019: From Observation to Information and Users: The Copernicus Marine Service Perspective . *Frontiers in Marine Science* , 6(234), 22p.
- Cronin and co-authors, OceanObs’19, 2019 : Air-sea fluxes with a focus on heat and momentum

Scatterometer Series

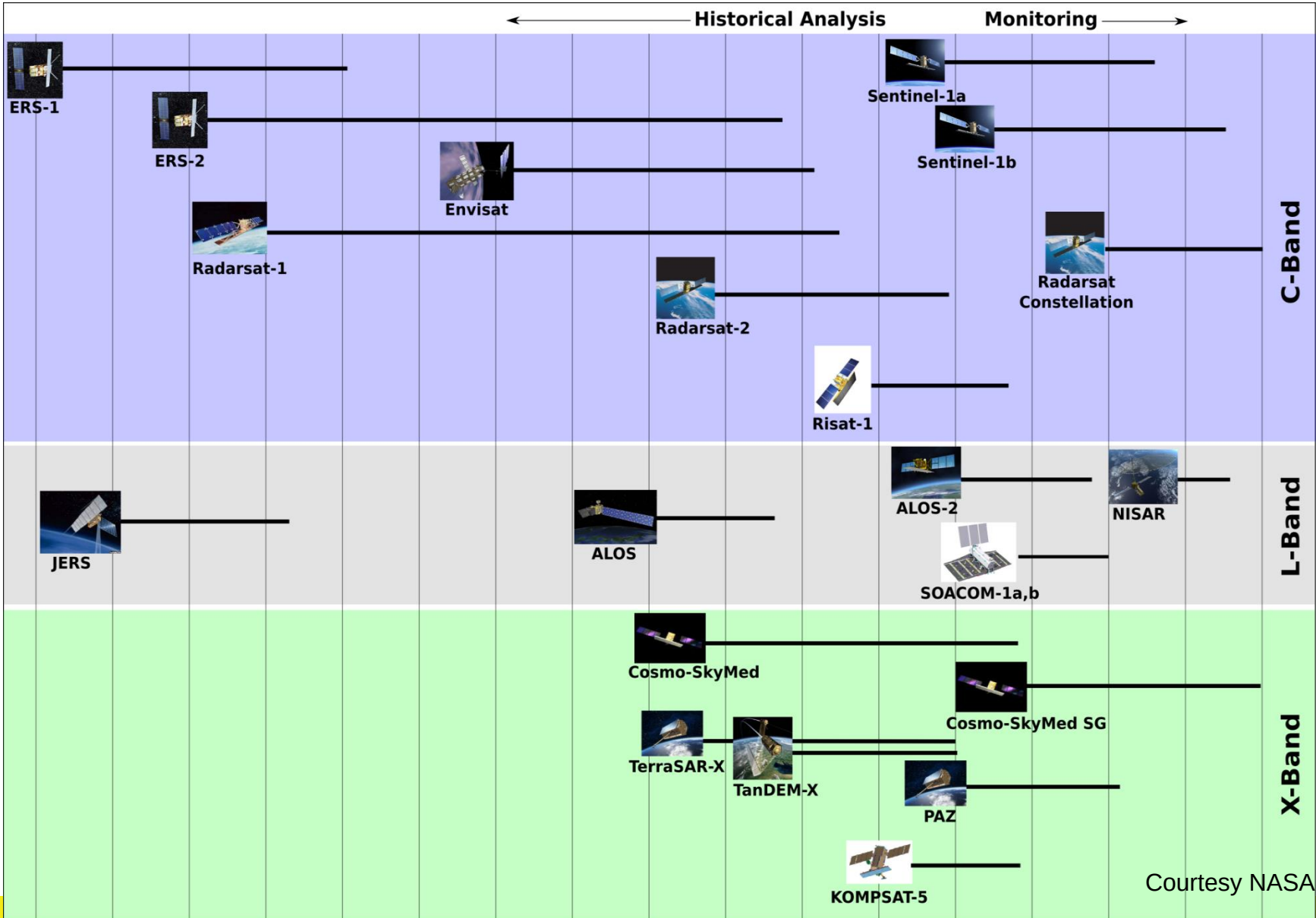


>27 years Scatterometer Wind Vector Observations



Satellite Aperature Radar(SAR) Series

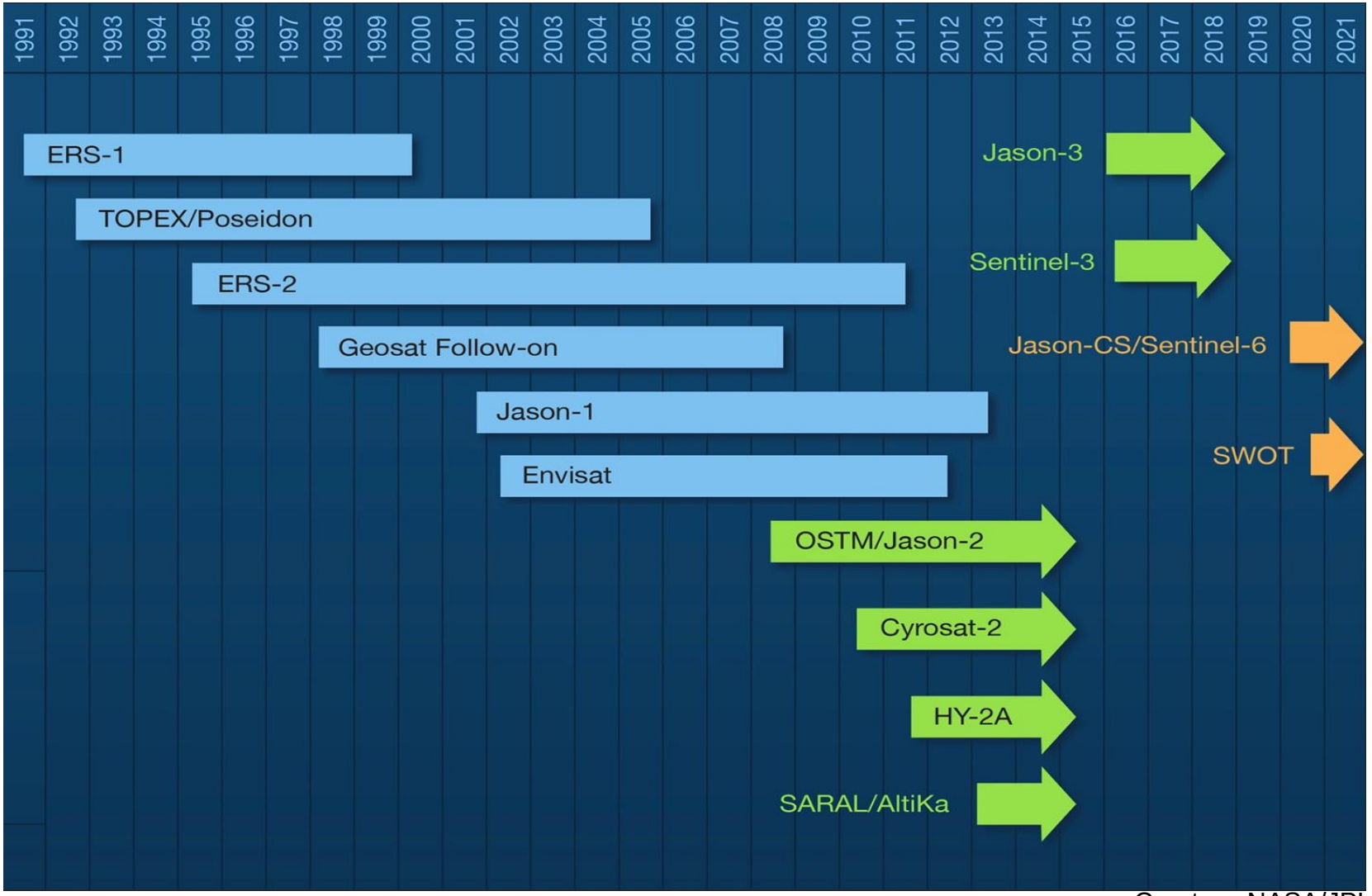
>15 years SAR Wind Vector Observations



Courtesy NASA

Altimeter Series

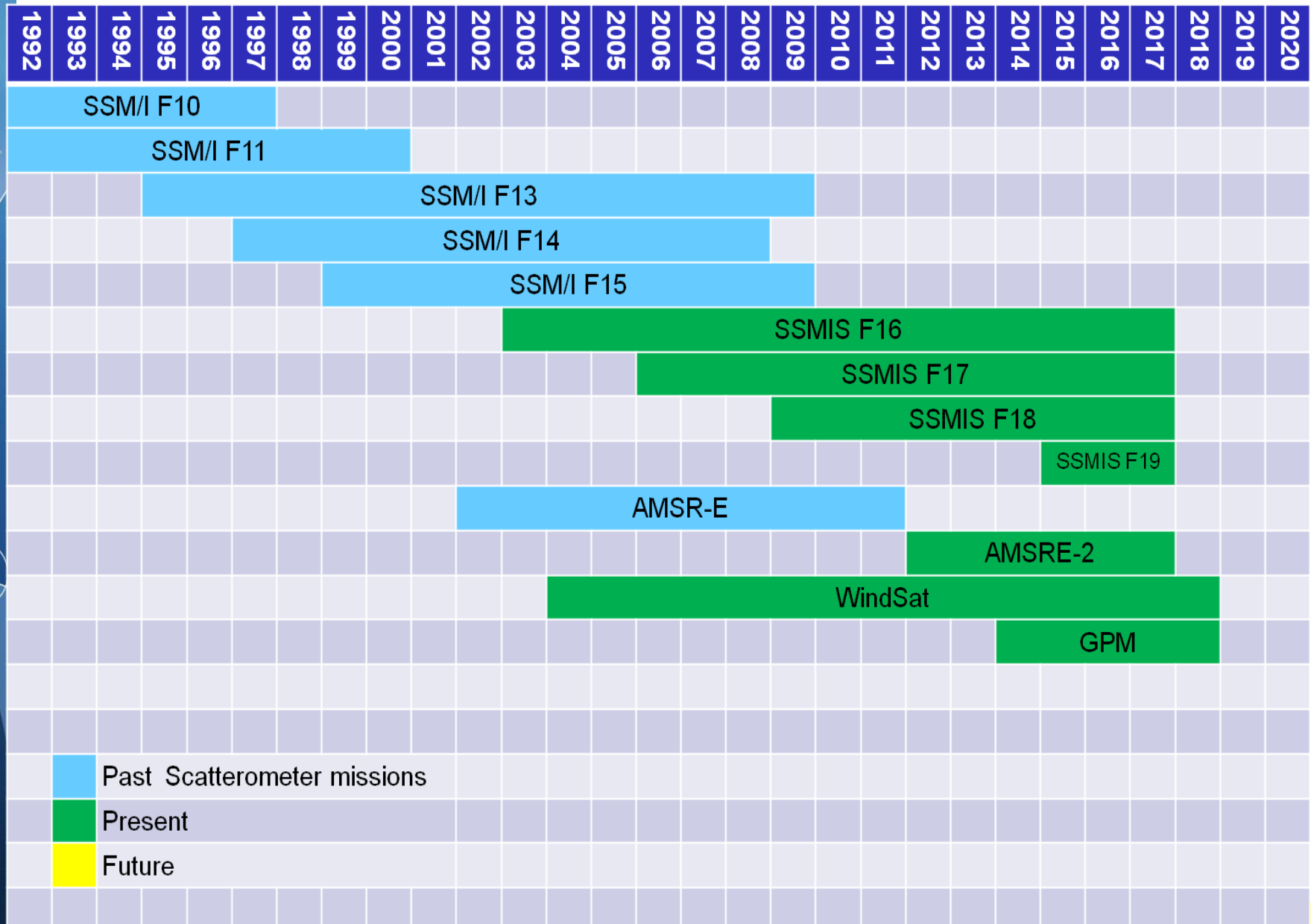
>27 years Altimeter Wind and Sea State Observations



Courtesy NASA/JPL

Radiometer Series

>27 years Radiometer atmospheric and oceanic Observations



Homogenization Issues

Journal of Marine Systems
Volumes 117–118, May 2013, Pages 72-80

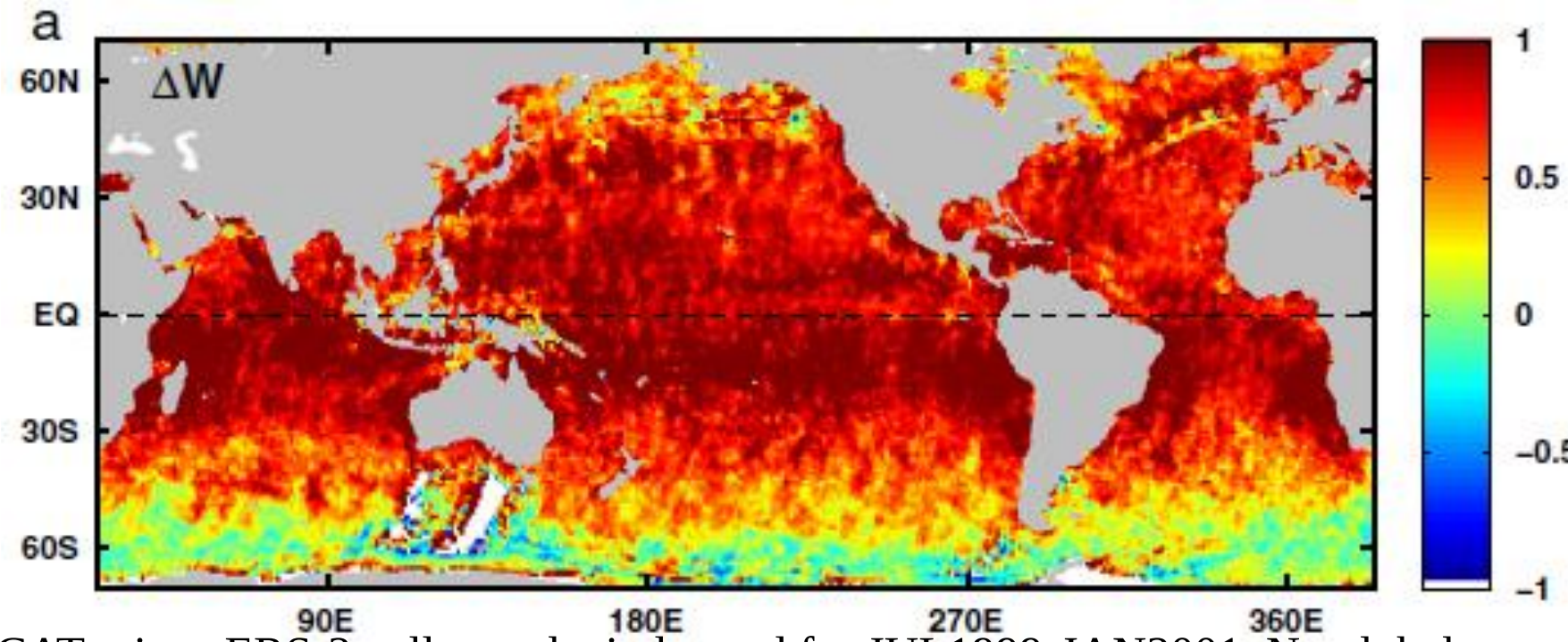
Compatibility of C- and Ku-band scatterometer winds: ERS-2 and QuikSCAT

Abderrahim Bentamy [a], Semyon A. Grodsky [b], Bertrand Chapron [a], James A. Carton [b]

Show more
https://doi.org/10.1016/j.jmarsys.2013.02.008
Get rights and content

ECT: QS - 6:30am; ERS-2 – 10:30am.

Collocation criteria: <50km, <5hr



QuikSCAT minus ERS-2 collocated wind speed fro JUL1999-JAN2001. No global ERS-2 data after JAN2001.

ERS-2 data are based on CMODIFR2 GMF. CMODIFR2 has been derived by fitting ERS-1 data to in-situ NDBC buoys and used without any adjustments for ERS-2

Homogenization Issues

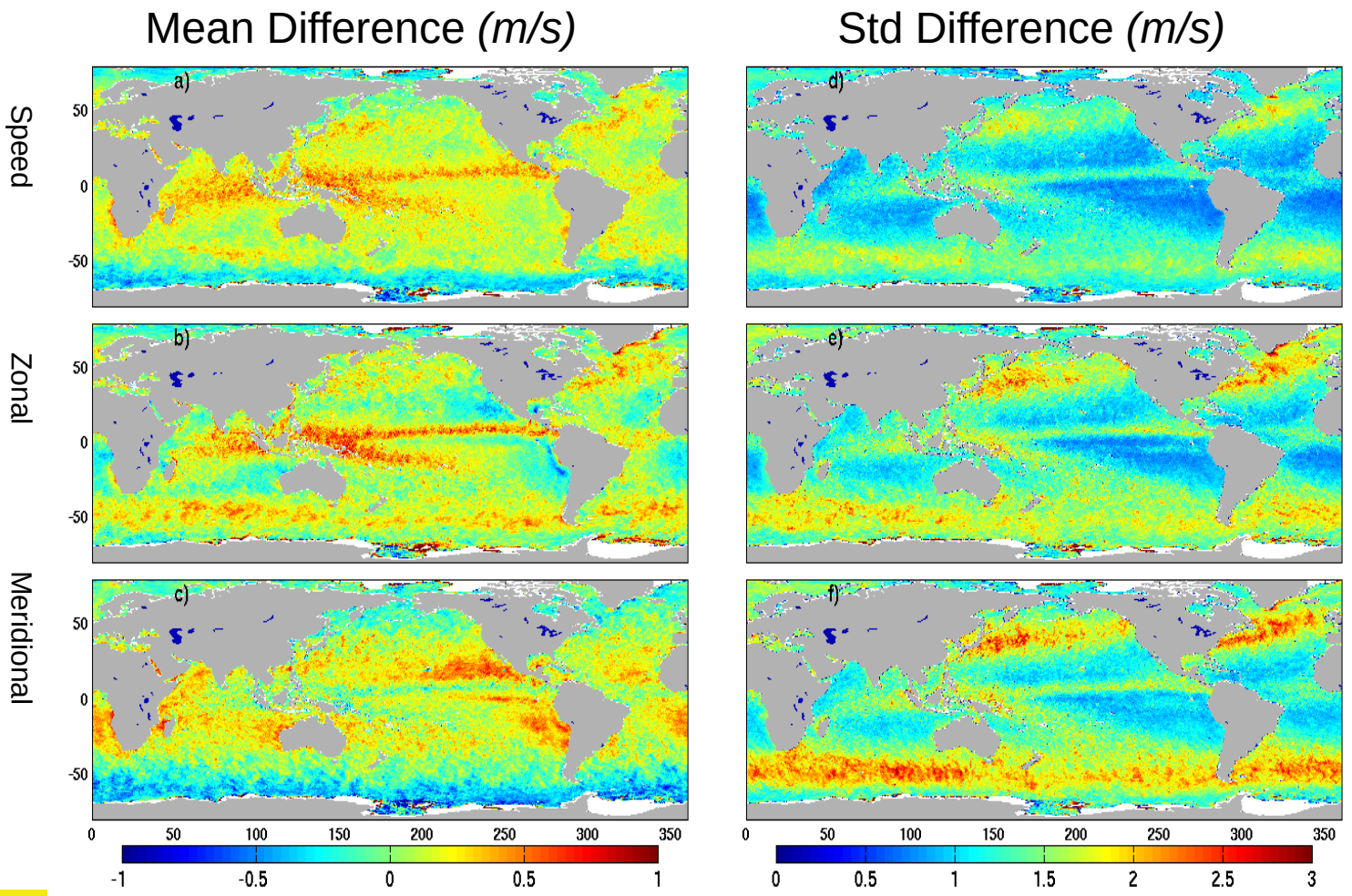
GEOPHYSICAL RESEARCH LETTERS, VOL. 39, L12602, doi:10.1029/2012GL052091, 2012

Does direct impact of SST on short wind waves matter for scatterometry?

Semyon A. Grodsky,[1] Vladimir N. Kudryavtsev,[2] Abderrahim Bentamy,[3] James A. Carton,[1] and Bertrand Chapron[2,3]

Received 19 April 2012; revised 18 May 2012; accepted 21 May 2012; published 20 June 2012.

Spatial distributions of *bias* (left panels), and *standard deviation* (right panels) of wind speed (top), zonal (middle), and meridional (bottom) components differences between QuikSCAT and ASCAT retrievals during November 2008 – November 2009.



Towards Homogenization of Scatterometer Wind Retrievals

International Journal of Climatology
RMetS
RESEARCH ARTICLE

Homogenization of scatterometer wind retrievals

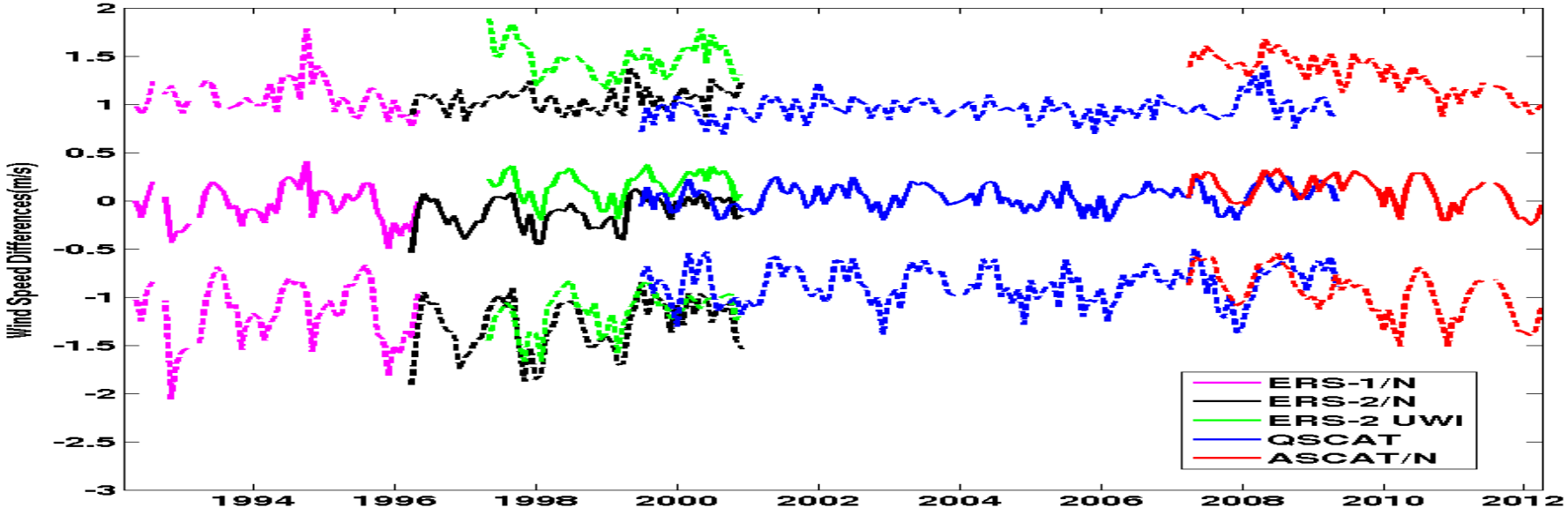
Abderrahim Bentamy, Semyon A. Grodsky, Anis Elyouncha, Bertrand Chapron, Fabien Desbiolles

First published: 13 May 2016 | https://doi.org/10.1002/joc.4746 | Cited by: 4

Using Results from
Collocated Buoy / Scatterometer data
Collocated Scatterometer/Scatterometer data

Retrieving Corrected Scatterometer Winds

Fig: Time series of Mean Difference Buoy – Scatterometer Wind Speeds



Improving Ocean Forcing Function

Journal of Marine Systems
Volume 168, April 2017, Pages 38-56

Two decades [1992–2012] of surface wind analyses based on satellite scatterometer observations

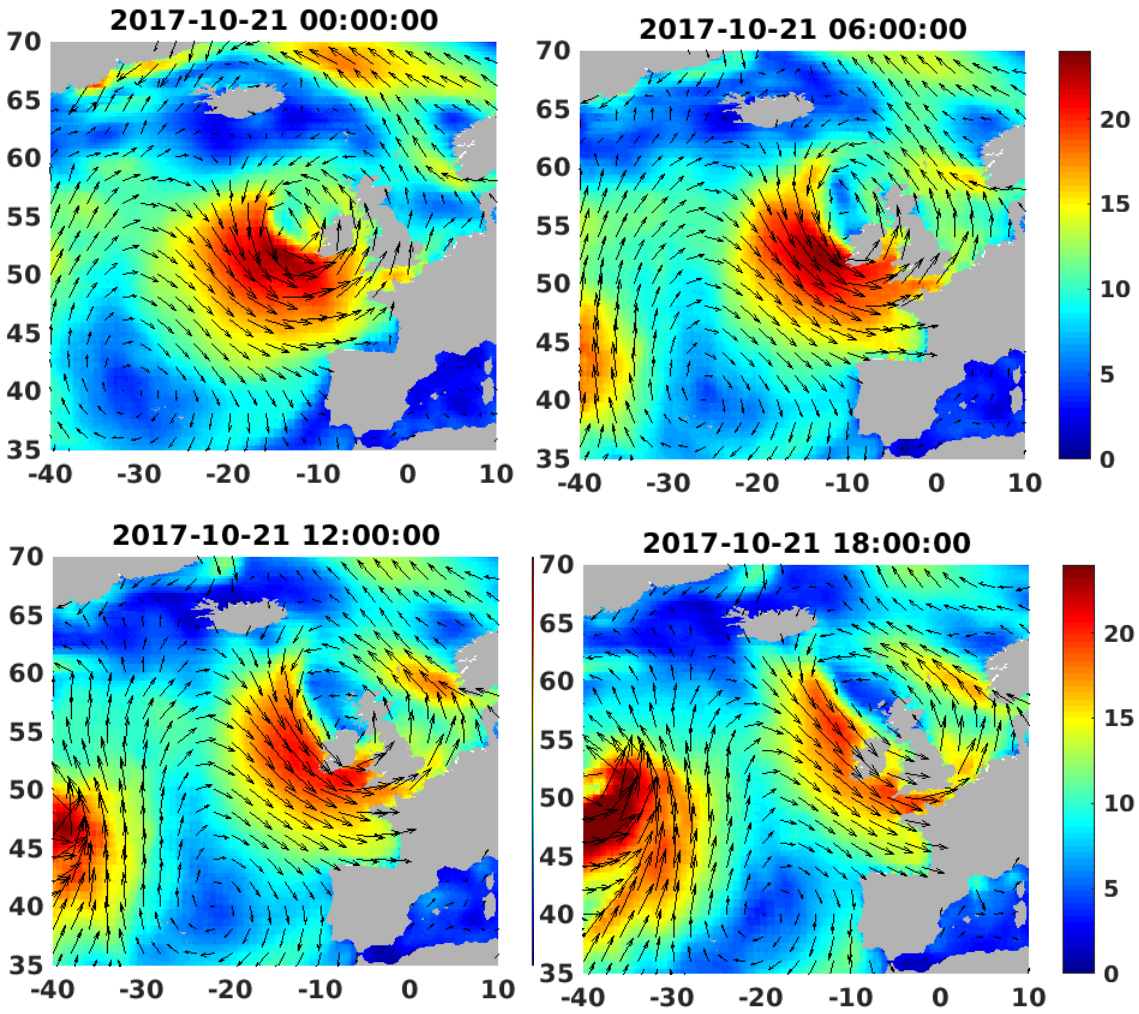
Fabien Desbiolles [a, b, c], Abderrahim Bentamy [a, b], Bruno Blanke [b], Claude Roy [b], Alberto M. Mestas-Nuñez [d], Semyon A. Grodsky [c], Steven Herbette [b], Gildas Cambon [b], Christophe Maes [b]

Intercalibrated Remotely Sensind Data (**L2b**)

Determination of Space and Time gridded Winds (**L3 and L4** products)

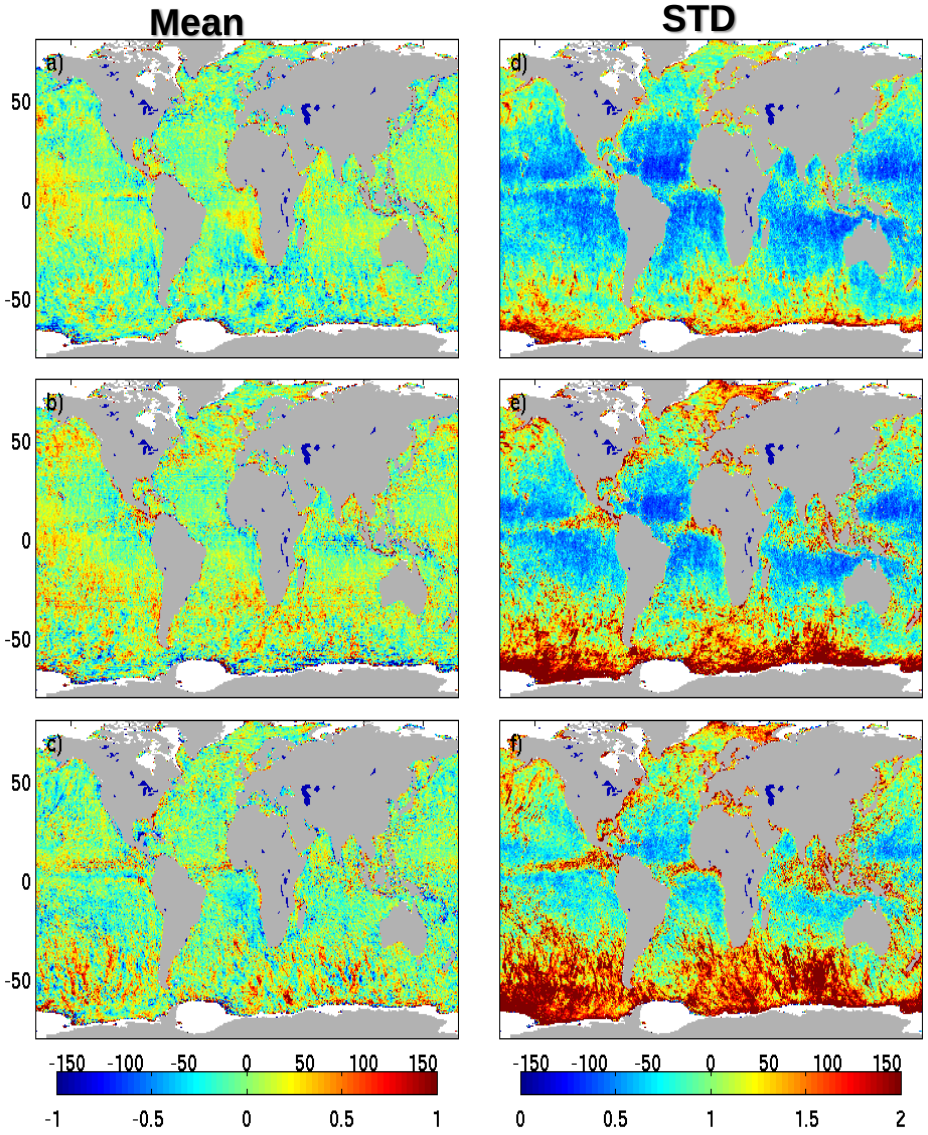
L3 : Daily and Monthly / 0.25degx0.25def

L4 : 6 hourly / 0.25deg (global) and 0.125deg (Regional)

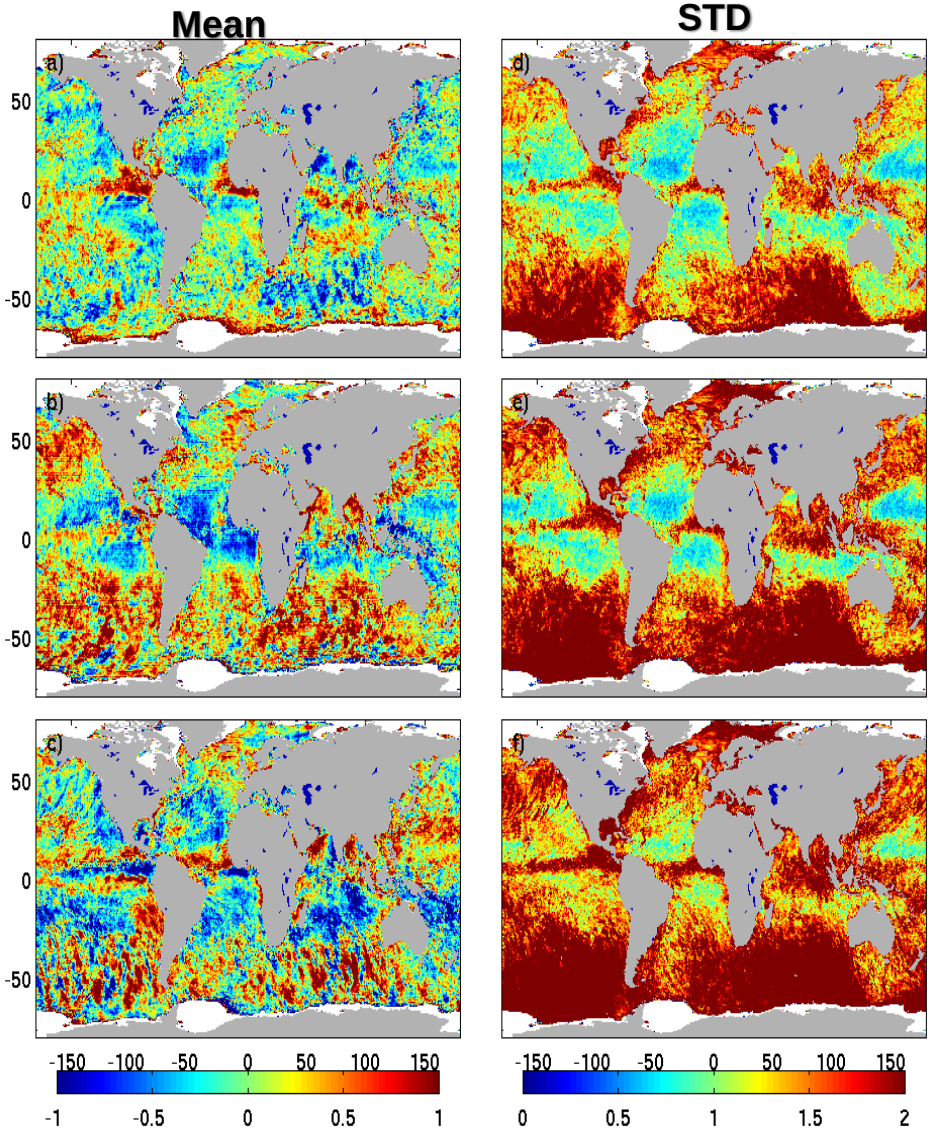


Quality Control of L4 Wind Results

ASCAT L2b – L4 (**Copernicus**)



ASCAT L2b – ECMWF (Analyses)



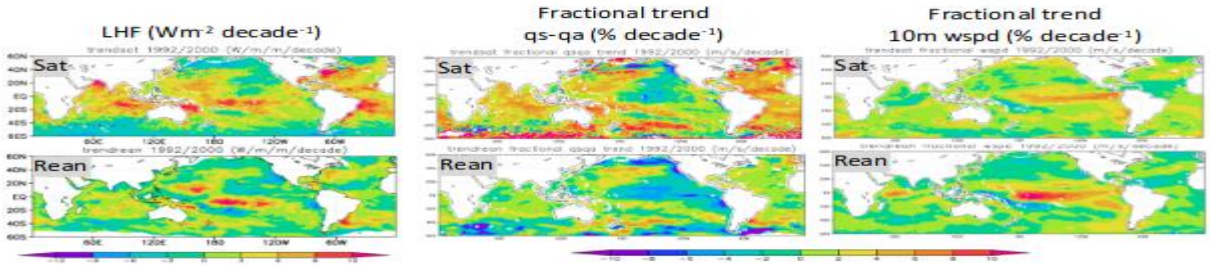
Summary : Usefulness of Satellite Wind Data

Homogenization / Intercalibration of Remotely Data

Long Time Series (1992 – 2018) of Wind Analyses (***marine.copernicus.eu***)

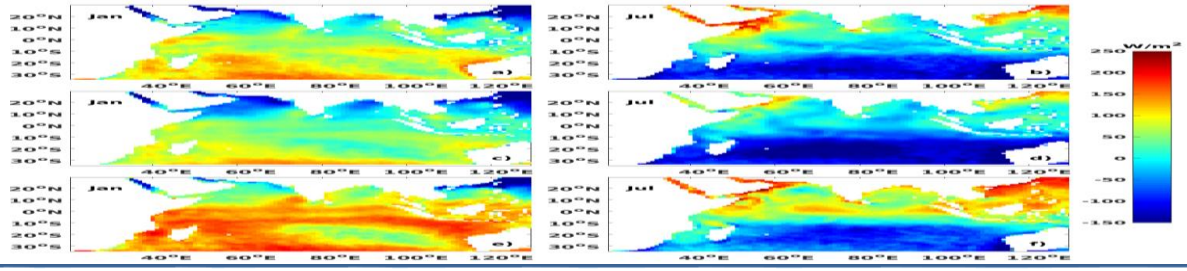
Long Time Series (1992 – 2018) of Ocean Heat Fluxes (*https://wwz.ifremer.fr/**oceanheatflux***)

Assessment of NWP re-analyses



(e.g. Robertson *et al*, 2018, 2019)

Regional Net Heat Flux



(e.g. Pinker *et al*, 2014, 2017, 2019)

Global and regional Ocean Forcing Impact (e.g. Upwelling systems)

Energy Resource Impact (*www.arcwind.eu*)

Illustrating Coherency Issue

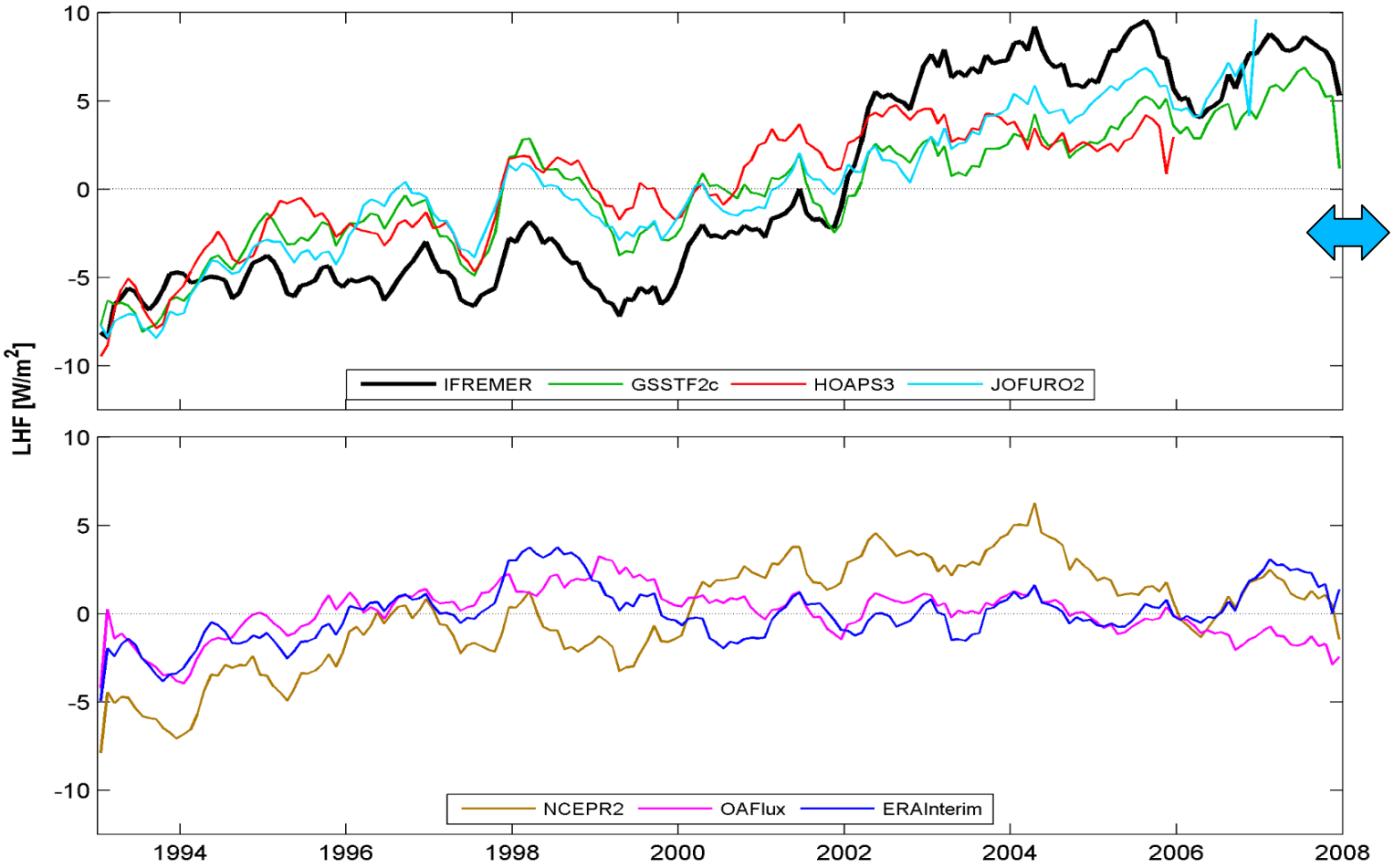
The ENSO footprint in monthly satellite evaporation over the global ocean during 1993–2007

Alberto M. Mestas-NuÑez, Frank J. Kelly, Abderrahim Bentamy & Kristina B. Katsaros

To cite this article: Alberto M. Mestas-NuÑez, Frank J. Kelly, Abderrahim Bentamy & Kristina B. Katsaros (2013) The ENSO footprint in monthly satellite evaporation over the global ocean during 1993–2007, Remote Sensing Letters, 4:7, 706-714, DOI: 10.1080/2150704X.2013.788259

To link to this article: https://doi.org/10.1080/2150704X.2013.788259

Latent Heat Flux Anomaly



Wind Consistency Issue