



WEDNESDAY MORNING

8:15 Registration and poster set up (posters will be up for the whole meeting); Continental Breakfast

Programmatic Talks

Chair: Mark Bourassa

- 8:45 Welcome to Salt Lake City
- 5 m David G. Long (Brigham Young University)
- 8:40 Introduction From The Organizing Committee
- 5 m Mark Bourassa (Florida State University) and Stefanie Linow
- 8:55 Ocean Vector Winds – a view from Washington and NASA HQ
- 10m Nadya Vinogradova-Shiffer (NASA HQ; Invited talk)
- 9:05 Status and recent developments of the EUMETSAT scatterometer missions
- 10 m Stefanie Linow (EUMETSAT), N Khosravi, C Anderson, S Kok Lupemba, M Cloarec

Short Reviews (part 1)

Chair: Alexander Wineteer

- 9:20 Review of Equivalent Neutral Winds and Stress Equivalent Winds
- 5 m Mark Bourassa and Ad Stoffelen
- 9:25 Introduction to Scatterometry
- 5 m David G. Long
- 9:30 Review of GNSS-R Winds
- 5 m Chris Ruf
- 9:35 Questions (5 minutes)

Pre-break Poster Lightning Presentations, Part 1 (60 to 90 second and one slide summaries)

Chair: Ethan Wright

- 9:40 Quality Control of WindRAD Scatterometer
Zhen Li (KNMI), Anton Verhoef, and Ad Stoffelen
- #2 Impact study of scatterometer winds on heavy rain forecast in the JMA's regional forecast model
Yusuke Ioka (Japan Meteorological Agency)
- #3 Mitigating the Effects of Rain for OSCAT Wind Retrieval
Benjamin J. Fogg (Brigham Young University), David Long
- #4 Mapping ice slabs in Antarctic ice shelves using enhanced-resolution L- and C-band radar backscatter image time series
Julie Miller (University of Colorado Boulder), David G. Long, R. Culberg
- #5 Modeling of a coastal upwelling region using scatterometer based bias corrections of ERA5 winds
Ethan Wright (COAPS Florida State University), Mark Bourassa
- #6 Integrating COARE 3.5 and Wind-Current Feedbacks into ROMS-WRF Coupling
L. Fernando Pareja Roman (Rutgers University), John Wilkin, Hernan Arango
- #7 Subsurface Temperature Anomalies off Central Oregon During 2014-2021
Brandy T. Cervantes, Melanie R. Fewings, and Craig M. Risien (Oregon State University)
- #8 Veery Fledglings - Prototype Scatterometry from CubeSats
Patrick Walton (Care Weather Technologies, Inc.), Alex Laraway, David G. Long, Timothy Lang
- #9 Antarctica Ice Modeling for Cross-Calibration
S. Porter and David G. Long

9:55 Break and poster viewing (35 minutes)

Short Reviews (part 2)

Chair: Alexander Wineteer

- 10:30 Review of SAR Winds
- 5 m Justin Stopa, Giuseppe Grieco, Ad Stoffelen, Tyler Ruff
- 10:35 Review of Radiometric Winds
- 5 m Shannon Brown, Lucrezia Ricciardulli and others
- 10:40 The Virtual Scatterometer Constellation and its Exploitation in User Applications
- 5 m Ad Stoffelen
- 10:45 Discussion (20 minutes)

- 11:05 PO.DAAC Updates: Available Data, Access, Services, and Cloud Capabilities
7 m Dean Henze (NASA Jet Propulsion Laboratory, California Institute of Technology),
11:12 Investigation of calibration change in the ocean surface wind measurements from the TAO buoy array
7 m Lucrezia Ricciardulli (Remote Sensing Systems), Andrew Manaster, Richard Lindsley
11:19 Data Sharing Issues
7 m Mark Bourassa
11:26 Sharing Scatterometer Data
7 m Ad Stoffelen
- 11:26 Discussion on Difficulties in Sharing data (27 minutes)

12:00 Lunch (60 minutes)

WEDNESDAY AFTERNOON

Observing System Updates and Remote Sensing Technology (part 1)

Chairs Stephen Frasier

- 1:00 CYGNSS Improved Wind Speed Product over Tropical Cyclones
15 m Christopher Ruf (University of Michigan), Mohammad Al-Khaldi, Rajeswari Balasubramaniam, Daniel Pascual, April Warnock
- 1:15 Compact Ocean Wind Vector Radiometer: Mission Status and In-orbit Performance
15 m Shannon Brown (Jet Propulsion Laboratory), Mary Morris, Amarit Kitiyakara, Federica Polverari and the COWVR STP cal/val team
- 1:30 Correction of Faraday Rotation Effects in SCA Data
15 m C Anderson, JJW Wilson, S Remus, M Cloarec, S Linow (EUMETSAT)
- 1:45 Simultaneous Winds and Surface Currents via the proposed ODYSEA Doppler Scatterometer
15 m Sarah Gille (Scripps Institution of Oceanography, UC San Diego), Tong Lee, Fabrice Ardhuin, Justin Boland, Mark Bourassa, Paul Chang, Sophie Cravatte, Tom Farrar, Melanie Fewings, Fanny Girard-Ardhuin, Gregg Jacobs, Zorana Jelenak, Florent Lyard, Jackie May, Elisabeth Rémy, Lionel Renault, Ernesto Rodriguez, Cl  men
- 2:00 Calibration and inversion of the backscatter data from the Chinese OSCOM Doppler Scatterometer airborne prototype
15 m Shilei Wang (National Space Science Center, NSSC-CAS), Marcos Portabella, Xiaolong Dong, Wenming Lin, and Qingliu Bao
- 2:15 Performance Simulations for Veery, a Small Scatterometer for an Hourly OSVW Constellation
7 m Patrick Walton (Care Weather Technologies, Inc.), David G. Long, Alex Laraway
- 2:23 High Resolution L-band Wind speeds from the Global L-band Observatory for Water Cycle Studies (GLOWS)
7 m David Long (Brigham Young University), Rajat Bindlish, Jeffrey Piepmeier, and Mark Bailey

Pre-break Poster Lightning Presentations, Part 2 (60 to 90 second and one slide summaries)

Chair: Ethan Wright

- 2:30 Satellite-derived Ocean-Surface Stress and Ekman Circulation in the Arctic
Lisan Yu (WHOI)
- #2 Broad Banded Spectral Analysis on Direct Numerical Simulations Of Wind-Wave Coupling
Clara Martin Blanco (Princeton University), Jiarong Wu, Nicolo Scapin, Stephanie Popinet, Tom Farrar, Bertrand Chapron, and Luc Deike.
- #3 Science Goals Related to Spray Modification of Hurricane Winds and Turbulent Fluxes
Amelia Bryan (Florida State University), Mark Bourassa
- #4 Intercalibration of SFMR and Tail Doppler Estimates of 10 Meter Mean Winds and One Minute Maximum Winds
Maggie Zoerner (Florida State University), Mark Bourassa
- #5 Rain Detection and Wind Retrieval Using U-NET on ASCAT Measurements
Matthew McKinney (BYU) and David G. Long
- #6 CYGNSS Fluxes and Extratropical Applications
Juan Crespo (UCLA JIFRESSE)
- #7 A New Climate Data Record of the Ocean Surface Winds and Stress: Focus on the Dynamically-Significant Derivatives and Investigating their Role in Convective Development
Svetla Hristova-Veleva, Ethan Wright, Larry O'Neill, Mark Bourassa, Alex Wineteer, Douglas Vandemark, R. Jacobs
- 2:45 Retrieval of Ocean Surface Wind Speed for Future Passive Microwave Imager: MWI
5 m Sisma Samuel (Research Scientist), Anton Verhoef Ad Stoffelen

2:50 Break and poster viewing (40 min)

Observing System Updates and Remote Sensing Technology (part 2)

Chairs: Stefanie Linow and Giuseppe Grieco

- 3:30 Improving SFMR retrievals in mid-latitude winter storms
15 m Stephen Frasier (University of Massachusetts), Jezabel Vilardell Sanchez, Joseph Sapp, Zorana Jelenak, Paul Chang
- 3:45 Coastal Wind Observations with HF Radar: Status and Validation
7 m Brian Emery (Marine Science Institute, University of California Santa Barbara), Anthony Kirincich
- 3:53 Evaluation of COWVR as a Cost-Effective Sensor for Ocean Vector Winds and Other Air-Sea Variables
7 m Richard Lindsley (Remote Sensing Systems), Frank Wentz, Katherine Wentz
- 4:00 Compact Ocean Wind Vector Radiometer: Analysis on the ocean surface emissivity geophysical model function and the synergy with the Temporal Experiment for Storms and Tropical Systems (TEMPEST)
15 m Federica Polverari (Jet Propulsion Laboratory, California Institute of Technology), Shannon T. Brown, F. Joseph Turk, Mary G. Morris, Svetla Hristova-Veleva, Tong Lee
- 4:15 DopSCA
15 m Ad Stoffelen (KNMI), Alexandre Payez, Paco Lopez Dekker, and Owen O'Driscoll
- 4:30 Discussion (60 minutes)
- 5:30 Close of day

THURSDAY MORNING

8:15 Registration and poster set up (posters will be up for the whole meeting); Continental Breakfast

Oceanography

Co-Chairs: Steven Morey and Hector Torres

- 8:45 Correction of NWP ocean surface wind biases with machine learning and scatterometer data
7.5 m Evgeniia Makarova (Barcelona Expert Center (BEC), Institute of Marine Sciences (ICM-CSIC)), Marcos Portabella, Ad Stoffelen, Ana Trindade, Giuseppe Grieco
- 8:53 Validation of QuikSCAT-Derived Coastal Winds
7.5 m Giuseppe Grieco (Istituto di Scienze Marine - Consiglio Nazionale delle Ricerche), Marcos Portabella, Ad Stoffelen, Anton Verhoef, Jur Vogelzang, Anton Verhoef, Andrea Zanchetta, Stefano Zecchetto, Andrea Zanchetta
- 9:00 Upwelling along Complex Coastlines from Remotely Sensed Winds
15 m Steven Morey (Florida A&M University),
- 9:15 Atmospheric Intraseasonal Oscillations Leading to Sea Level Extremes in Coastal Indonesia during Recent Decades
15 m Will Kamp, W. Han, L. Zhang, S. Kido, and J.P. McCreary
- 9:30 Swell direction impact to satellite derived sea surface winds
15 m Faozi Said (Global Science & Technology, Inc / NOAA), Zorana Jelenak, Paul S Chang
- 9:45 Discussion (30 minutes)

10:00 Break and poster viewing (30 min)

What needs to be done or changed to better understand observed extreme winds in the context of satellite observations and weather models? (part 1)

Co-Chairs: Marcos Portabella and Lev Looney

- 10:30 An Overview of the Aircraft TC Measurement: From Present Capabilities to Future Needs
15 m Zorana Jelenak (NOAA/NESDIS/STAR-UCAR), Paul Chang, Ralph Foster, Heather Holbach and Mark Bourassa
- 10:45 How do we define wind speed for hurricane force winds?
15 m Mark Bourassa (Florida State University), and Renee Richardson
- 11:00 Intercalibration and error characterization of satellite and synergistic sea-surface wind products under tropical cyclone conditions
15 m Federico Cossu (Barcelona Expert Center (BEC), Institute of Marine Sciences (ICM-CSIC)), Evgeniia Makarova, Albert S. Rabaneda, Marcos Portabella, Joe Tenerelli, Nicolas Reul, Ad Stoffelen, Giuseppe Grieco, Joseph Sapp, Zorana Jelenak, and Paul Chang
- 11:15 Aircraft Scatterometer and Radiometer Measurements within Tropical Cyclone Extreme Rain Bands
15 m Zorana Jelenak (NOAA/NESDIS/STAR-UCAR), Joe Sapp, Clayton Byorland, Paul Chang and Casey Shoup
- 11:30 Using Extreme Value Theory to Study Decadal Trends in Extreme Ocean Surface Winds
15 m Alexandre Payez (KNMI), Ad Stoffelen, Cees de Valk, Rianne Giesen

12:00 Lunch break (1 hour)

THURSDAY AFTERNOON

What needs to be done or changed to better understand observed extreme winds in the context of satellite observations and weather models? (part 2)

Co-Chairs: Marcos Portabella and Lev Looney

- 1:00 Comparison of ASCAT and SWOT Wind Speeds Near Sea Ice
15 m Bryan W. Stiles (Jet Propulsion Laboratory), Alexander Fore, Alexander Wineteer, and Benjamin Holt
1:15 Updates on extreme wind measurements with satellite microwave radiometers
15 m Lucrezia Ricciardulli (Remote Sensing Systems), Thomas Meissner, and Andrew Manaster
1:30 Extreme Winds Observed by Sairdrones and the Need for Collaboration with the Satellite Community
15 m Lev Looney (University of Miami/NOAA AOML), Gregory Foltz, Cheyenne Stienbarger, the NOAA-Sairdrone Hurricane Science Team
1:45 Discussion (65 minutes)

2:50 Break and poster viewing (30 min)

Air-Sea Interaction

Co-Chairs: Bia Villas Bôas and Juan Crespo

- 3:20 Wind and Current Matchup: Evaluating the Performance of Ekman Theory in OSCAR
15 m Kathleen Dohan (Earth & Space Research),
3:35 Observing the Ocean Surface and the Air-Sea Boundary Layer: Currents and their Gradients at the Submesoscale
15 m Luc Lenain (SIO/UCSD), Nick Pizzo, and Mara Freilich
3:50 Surfactant effects on parasitic capillary wave dynamics
15 m Zehua Liu (Princeton University), Palas Kumar Farsoiya and Luc Deike
4:05 Momentum and energy fluxes in wind-forced breaking waves
15 m Nicolo Scapin (Princeton University), Jiarong Wu, Thomas Farrer, Bertrand Chapron, Stéphane Popinet, Luc Deike
4:20 Air-sea heat fluxes from SAR
15 m Owen O'Driscoll (TU Delft), Alexis Mouche, Bertrand Chapron, Marcel Kleinherenbrink, Paco López-Dekker
4:35 Wind profile characterization from scatterometry products and sea state parameters
7 m Albert Rabaneda (Meteorological Institute of Norway),
4:43 Hourly Surface Wind Forcing Products from ERS in the 1990's
7 m Ad Stoffelen (KNMI), Rianne Giesen, Jeroen Verspeek
4:50 Enhancing air-sea interaction research: Anticipated capabilities of the ODYSEA satellite mission to observe wind-current coupling
15 m Hector Torres (JPL/Caltech), Wineteer, A.; Klein, P.; Lee, T.; Wang, J.; Rodriguez, E.; Menemenlis, D.; Zhang, H

5:05 Discussion (30 minutes)

5:35 Close of 2nd day

FRIDAY MORNING

8:15 Registration and poster set up (posters will be up for the whole meeting); Continental Breakfast

Processes through which currents, SSTs, and waves interact with ocean surface winds to modify air-sea coupling, and the resulting impacts on the atmosphere and ocean (part 1) Co-Chairs: Ad Stoffelen and Ralph Foster

9:00 Near-surface wind and wave drift currents in the coupled air-sea boundary layer

15 m Roger Samelson (Oregon State University)

9:15 Surface currents and relative-wind stress in coupled ocean-atmosphere simulations of the northern California Current System

15 m Roger Samelson (Oregon State University), S. M. Durski, D. B. Chelton, E. D. Skillingstad, P. L. Barbour

9:30 Zero Current Equivalent Wind (Uzc): Adjusting ERA5 Windspeeds for Currents

15 m Gopal Sundaram (University of Michigan), Christopher Ruf

9:45 Advancing CYGNSS Derived Ocean Surface Turbulent Fluxes: Accounting for Stability Effects

15 m Shakeel Asharaf, Juan A. Crespo, and Derek J. Posselt

10:00 Break and poster viewing (30 minutes)

Processes through which currents, SSTs, and waves interact with ocean surface winds to modify air-sea coupling, and the resulting impacts on the atmosphere and ocean (part 2) Co-Chairs: Roger Samelson and Nick Pizzo

10:30 Characterizing Ocean Wind and Air-sea Coupling During the S-MODE Field Experiment with DopplerScatt

15 m Alexander Wineteer (Jet Propulsion Laboratory), Ernesto Rodriguez, Hector Torres, Dragana Perkovic-Martin, Federica Polvarari, Ruzbeh Akbar

10:45 Wind and Current Couplings During Low and High Winds

15 m Ernesto Rodriguez (JPL/Caltech), Alexander Wineteer, Hector Torres

11:00 Observations and modeling of wind-wave-current interactions at meso and submesoscales

15 m Bia Villas Boas (Colorado School of Mines), Gwendal Marechal, Matthew Mazloff, Rui Sun, Nicholas Pizzo, Luc Lenain, Han Wang, Jacques Vanneste, and Bill Young

11:15 Discussion (45 minutes)

12:00 Lunch (60 minutes)

FRIDAY AFTERNOON

Meteorology (part 1)

Co-Chairs: Toshio Shinoda and Alberta Rabaneda

- 1:00 A multi-satellite, multi-scale investigation of marine atmospheric boundary layer impacts on low-level cloud variability
15 m Justin Stopa (The University of Hawaii at Manoa), Ralph Foster, Hauke Schulz, Ryan Eastman, Douglas Vandemark, Alexis Mouche, Bertrand Chapron, Peter Sadowski, Yannik Glaser
- 1:15 Using SAR to Diagnose the Boundary Layer Structure of Hurricane Larry, 7 Sep 2021
15 m Ralph Foster (APL/University of Washington), Zorana Jelenak, Joe Sapp, Paul Chang, Alexis Mouche, Bertrand Chapron
- 1:30 Impact of Indian Ocean tropical cyclones on the development of the Madden-Julian Oscillation (MJO)
15 m Toshiaki Shinoda (Texas A&M University - Corpus Cristi), Suyang Pei
- 1:45 Zonostrophic turbulence in Hurricanes
15 m Boris Galperin (College of Marine Science, University of South Florida), A. K. Nickerson, G. P. King, J. A. Zhang, and S. Sukoriansky
- 2:00 Ocean surface vector winds from ISRO's latest scatterometer on-board Earth Observation Satellite (EOS) - 06
15 m Abhisek Chakraborty (SAC, ISRO), Pradeep Kumar Thapliyal, Devang M. Mankad, Prantik Chakraborty, Rashmi Sharma, Raj Kumar
- 2:15 NOAA's Ultra High Resolution ASCAT Tropical Cyclone Wind Products
15 m Seubson Soisuvan (NOAA/NESDIS-UCAR), Suleiman Alsweiss, Zorana Jelenak, Paul S. Chang, Qi Zhu, Faozi Said, Joseph Sapp, and Christopher Jackson
- 2:30 SAR-learned scatterometer resolution enhancement of tropical cyclones
15 m Ad Stoffelen (KNMI), Weicheng Ni, Jur Vogelzang, Xingou Xu, Ke Zhao
- 2:45 Exploiting Many Scatterometers
15 m Ad Stoffelen (KNMI)

3:00 Break and poster viewing (30 minutes)

Meteorology (part 2)

Co-Chairs: Toshio Shinoda and Mark Bourassa

- 3:30 Discussion (45 minutes)

Meeting Wrap-up

Chair: Mark Bourassa

- 4:15 End of meeting discussion (45 m)

5:00 End of Meeting

POSTERS PRESENTATIONS AND ORDER FOR NINETY-SECOND LIGHTNING PRESENTATION
(Posters will be up throughout the meeting)

Poster Highlights Current and Future Ocean Vector Wind Mission Updates **(90 s talks, Wednesday AM)**

- #1 Quality Control of WindRAD Scatterometer
Zhen Li (KNMI), Anton Verhoef, and Ad Stoffelen
- #2 Impact study of scatterometer winds on heavy rain forecast in the JMA's regional forecast model
Yusuke Ioka (Japan Meteorological Agency)
- #3 Mitigating the Effects of Rain for OSCAT Wind Retrieval
Benjamin J. Fogg (Brigham Young University), David Long
- #4 Mapping ice slabs in Antarctic ice shelves using L- and C-band satellite radar scatterometry
Julie Miller (University of Colorado Boulder), David G. Long
- #5 Modeling of a coastal upwelling region using scatterometer based bias corrections of ERA5 winds
Ethan Wright (COAPS Florida State University), Mark Bourassa
- #6 Integrating COARE 3.5 and Wind-Current Feedbacks into ROMS-WRF Coupling
L. Fernando Pareja Roman (Rutgers University), John Wilkin
- #7 Subsurface Characteristics of Recent Marine Heat Waves off Central Oregon and Relation to Local Wind Forcing
Brandy T. Cervantes, Melanie R. Fewings, and Craig M. Risien (Oregon State University)
- #8 Veery Fledglings - Prototype Scatterometry from CubeSats
Patrick Walton (Care Weather Technologies, Inc.), Alex Laraway, David G. Long, Timothy Lang
- #9 An Analysis of Antarctica as a Target for First Order Cross-Calibration Between NSCAT, ASCAT, and SMAP
S. Porter and David G. Long

Poster Highlights for Planning and Results for Improved Calibration of Extreme Winds and Stress,
Climate Data Record Development and Analysis and Meteorological Applications **(90 s talks, Wednesday PM)**

- #1 Surface Wind Stress and Ekman Circulation in the Polar Oceans – Preliminary results
Lisan Yu (WHOI),
- #2 Direct Numerical Simulations Of Broadband Waves Forced By Turbulent Wind: A Multiscale Spectral Analysis
Clara Martin Blanco (Princeton University), Nicolo Scapin, Jiarong Wu, Tom Farrar, Bertrand Chapron, and Luc Deike.
- #3 Science Goals Related to Spray Modification of Hurricane Winds and Turbulent Fluxes
Amelia Bryan (Florida State University), Mark Bourassa
- #4 Intercalibration of SFMR and Tail Doppler Radar Estimates of 10 Meter Mean Winds and One Minute Maximum Winds
Maggie Zoerner (Florida State University), Mark Bourassa
- #5 Rain Detection and Wind Retrieval Using U-NET on ASCAT Measurements
Matthew McKinney (BYU) and David G. Long
- #6 Development and Extratropical Applications of the CYGNSS Surface Heat Flux Product
Juan Crespo (UCLA JIFRESSE), Shakeel Asharaf, Catherine M. Naud, Rosa Luna-Niño, James Booth, and Derek J. Posselt
- #7 A New Climate Data Record of the Ocean Surface Winds and Stress: Focus on the dynamically-significant derivatives.
Svetla Hristova-Veleva, Mark Bourassa, Ethan Wright, Larry o'Neill, Bryan Stile, Federica Polverary, Alex Wineteer
- #8 Retrieval of Ocean Surface Wind Speed for Future Passive Microwave Imager: MWI
Sisma Samuel (Research Scientist), Anton Verhoef Ad Stoffelen