IOVWST 2024
Meeting Wrap up

Input from Mark, Session Chairs, and the IOVWST organizing Committee

Statements

- The IOVWST most strongly recommend the collection of high-resolution three-dimensional wind data in tropical and extratropical cyclones (e.g., as least as good as currently provided by IWRAP), with sufficient sampling in space to span a satellite footprint. We recommend making similar observations for temperature and humidity. We strongly recommend that surface winds, currents, and temperatures be collocated and nearly coincident. Furthermore, surface stress, surface currents and sub-surface temperatures, currents and stresses would also be very beneficial to collected for these cyclones.
- Efforts to collocate satellite data with these observations should continue and increase
- We most strongly recommend practices that will lead to sound physical modeling of the air/sea transition zone, and sound physics for interpreting remote sensing of these interactions.
  - Missions (e.g., ODYSEA, DopSCA, Harmony and Butterfly) that measure at least two of the key collocated variables (wind vectors, current vectors, SSTs, boundary-layer air temperature and humidity, waves, and white caps) are much more helpful than missions that measure single variables. Each of these missions has very different characteristics designed to address different operational and science objectives: the missions are not interchangeable.
  - Measurements of biological and biogeochemical variables would also help inform how physical processes interact with biological and biogeochemical processes.
  - Best practice includes transparent calibration and retrieval methodology for these observations, and where possible intercalibration checks with other observations.
  - More papers that demonstrate the usefulness of these data will help demonstrate the value of the above recommendations.

Statements Slide #2

- We are concerned about the calibration of wind sensors in the TAO array having different fits to collocated satellite data than other buoys. We strongly recommend that there is improved two-way and mutually beneficial communication regarding changes in buoys and other in situ platforms. We would like to form long-term relationship with NDBC and other buoy data centers.

Related Action #1: Short Paper on Observing System Needs for Cyclones

- Discussion on Thursday led to the suggestion that we publish a short paper on the needs for observations in cyclones (tropical and extratropical)
  - While the central focus is presumably aircraft observations, we will tie in observations from satellite, other in situ platforms, the surface and the sub-surface.
    - We should also address the need for comparison to in-situ data and intercalibration
  - We need someone to be the lead author (‘to herd the cats’)
  - This person is Mark.
- We should invite people outside the IOVWST. Suggestions include
  - Matt Kucas and James Darlow at JTWC

Related Action #2: Invitation to NDBC

- The IOVWST will invite someone senior at NDBC to attend our next meeting and explain the change in calibration.
  - Someone will identify the people to invite. This some person is Lev L. with input from his colleagues.
  - Mark will make the invitation
  - Keep in mind the next meeting will be in Germany.
    - Some participation will likely be remote.
    - The organizing committee will investigate how to make remote participation more effective
  - The IOVWST would welcome updates on buoy array changes, particularly the TAO array
  - Stress that we want a long-term relationship with mutually beneficial two-way communication.

Applications for High Resolution Winds and Currents

- People working on ODYSEA and DopSCA would benefit from knowing requirements for science problems and applications for high resolution surface winds and currents.
  - Someone(s) to be identified today will be tasked as the point of contact for this information, and to record the information. Ad Stoffelen and Mark Bourassa will be the POCs.
    - Ad will investigate adding our findings to OSCAR
    - This information includes the question/application and the observation requirements:
      - Sampling in space and time
      - Spatial sampling or resolution
      - Temporal sampling or resolution
      - Uncertainty at specific space and time scales
      - Other important factors
    - If these points (or most of them) are known, send them to the point of contact
  - The points of contact are Ad Stoffelen and Mark Bourassa (please let both of us know)
  - Svetla will investigate how to access offshore wind energy data

List of Wind Datasets

- At the prior (on-line) IOVWST meeting, Mark was asked to collect and post information about and links to wind-related data sets.
  - That is finally progressing with a lot of input too late for me to make use of the information for this meeting.
  - Note that one point of confusion is the difference between ‘resolution’ and ‘grid spacing’
    - The IOVWST recognizes that in some cases there will not be a good measure of resolution and that it will rarely the constant in space and time.
    - Estimated ranges for resolution will be provided when known
    - In the absence of this information on resolution, the resolution will be listed as ‘unknown’
  - Mark will post this information this summer
    - Information on new wind products (e.g., MEASURES winds and stresses) will be given to Mark by either the data provider or the data creator
    - Gaps in information, such as scalar wind products, will solved by the data provider or creator given the information to Mark

Improved Communication

- Publication in the Annals
  - Nick Pizzo will provide guidance on how to do this via ArXiv, and EarthArXiv
  - The wide communication and DOIs will be useful in multiple ways
- Arrange on-line updates for working groups (or other groups) (Mark
  - Team members to recommend groups
  - Set up Slack and/or Discord and Google Drive for sharing
  - Please inform Mark of the suggested working groups.
- Mark to share links to Special Issues that are ongoing in Remote Sensing
  - Air-Sea Interaction and Climate Variability in the Ocean: Observations and Modeling Based on Remote Sensing Techniques
    https://www.mdpi.com/journal/remotesensing/special_issues/YPOK9AW1P0
  - Editorial Board Members' Collection Series — Recent Advances in Ocean Radar
    https://www.mdpi.com/journal/remotesensing/special_issues/2I1LBYTUB8
  - Remote Sensing of High Winds and High Seas
    https://www.mdpi.com/journal/remotesensing/special_issues/99CZI83G5L

Data Sharing (Dealing with US Complications)

- Mark will legally obtain the data from Chinese instruments through European collaborators (KNMI).
  - The data trail will be noted in the metadata (must give KNMI credit)
  - Ad will give Mark the above statement to add to the metadata
  - Ad will give Mark the access information for the KNMI help desk – to be included in the metadata.
- Mark will reformat these to match the other data sets that he shares, and will share these data sets
  - Updates will NOT be NRT!
  - The updating will be automated, but Mark can't promise 24/7 availability or updating.
- How do we learn more about these data sets?
  - Would a virtual meeting help?
  - Are planned non-US meetings sufficient?
  - Other approaches?

Coastal Products

- Information on Coastal products will be given to Mark if these products are not on his list of data products.
  - Makers of these products will check to see if their products are on this list within two weeks of notice that the list is public (or could ask Mark for the list).
  - If the product is not on the list, they will give the information to Mark within one week.
- The science team (e.g., Bryan Stiles, Giuseppe Grieco and developers of coastal products) will collaborate on
  - Verification data in the coastal zone; in-situ, campaign, RS or SAR
  - Comparison of satellite products
  - RFI and structures are a concern, particularly near the coast
  - Bryan suggests using SWOT data to address several issues.

Collaboration with in-situ networks

- More clean and direct communications regarding changes in observing platforms
  - We'd like to build long-term relationships with two-way and mutually beneficial interaction
- Working together to get collocated observations
  - Especially in extreme conditions
  - Importance for not just winds, but a wide range of variables for fluxes, stresses, etc.
- Improved ways of comparing different platforms
  - Understanding what the measurements are and assumptions with them
- Mutual discussion of what needs to be included in the new aircraft (C-130s) in terms of observations
- Mara Freilich requests input on topics for the OASIS webinars
- We should request to use the OASIS webinar to try and build stronger community interaction (Mara Freilich approves in concept)

For the Next Meeting:

- Send Mark (or another organizing committee member) requests for tutorial topics (to be spread throughout the meeting rather than all on the first day). Requests already made are:
  - Retrieval methodologies
  - Air-sea fluxes
  - Air-sea interaction processes
  - What are the accepted methodologies for calculating equivalent neutral winds and stress?
- Send Mark (or another organizing committee member) requests for more focused session topics
- Pick a meeting date (Mark and Stefanie)
  - We need input on conflicts. Send these to Mark
  - We will be NASA a deadline of Dec. 15th to inform us of ODYSEA-related conflicts.
  - We will announce the meeting ASAP after Dec. 15th
  - The location will presumably be Darmstadt, Germany
    - Looking at May 5-8, considering June
  - Investigate obtaining funding to help Students/Early Career Scientist attend
- Invite select in situ experts (e.g., NDBC) to improve discussions and communications

For Next Meeting (#2)

- Remember to organize the meeting dinner (Stefanie).
  - Mark to remind Stefanie in a timely manner
- Early career/student get together to occur the day before the IOVWST meeting.
  - Likely associated with a dinner
  - IOVWST organizing committee to work with early career and student attendees to help arrange this to maximize benefit (and keep it fun)
- Multiple people will look into student funding opportunities, which will be shared well before the meeting.
  - NOAA travel (Lev and others)
  - MDPI student travel awards
  - Others?

IOVWST 2024
Meeting Wrap up

Input from Mark, Session Chairs, and the IOVWST organizing Committee