

## Climate Working Group Task List

1. Review this Task List and determine the degree to which it follows the more generic GCOS Guidelines for CDR generation given in <https://www.wmo.int/pages/prog/gcos/Publications/gcos-143.pdf>. Make modifications if necessary.
2. Prioritize tasks according to importance and the likelihood of making progress. Define a more limited workable scope that is commensurate with the commitments of the CWG members. Establish Subgroups responsible for performing tasks.
3. Review the **status of  $\sigma_0$  generation** and calibration as provided by the various agencies. Of particular concern is (a) the possibility of long-term instrumentation drift, (b) data processing inconsistencies over time, and (c) quality control procedures (i.e., data exclusion). Assess the impact of  $\sigma_0$  generation and calibration on OVW retrievals. (For example, something as simple as differences in the data exclusion procedures used by different data providers can be misinterpreted as climate change.)
4. Review the status and availability of existing OVW-CDRs (L3A, L3B, and L4) and the variables contained in the various CDRs ( **$\tau$ ,  $U_{10EN}$ , curl, divergence**). Select the CDR variables to compare and evaluate.
5. Develop a **plan for inter-comparing and evaluating** the selected CDR variables. Adopt standardized performance metrics, common data formats, and other procedures that will facilitate objective comparisons and evaluations.
6. Obtain **full documentation** on CDR generation from the data providers, including geophysical model functions, description of OVW retrieval algorithms, and methods for merging OVW retrievals obtained from sensors on different spacecraft.
7. **Perform the inter-comparisons** and evaluations of the various OVW-CDRs. Explain and, if possible, resolve differences among the OVW-CDRs.
8. Compare the scatterometer  $U_{10EN}$  variable to the existing 27-year CDR of **passive microwave wind speeds** and the 22-year **altimeter wind speed** record. Include CYGNSS wind speeds when they become available. Attempt to explain and reconcile any significant differences that are found.
9. Compare long-term trends seen in the OVW-CDRs with **trends derived from buoys** and other in situ measurements.

10. Identify CDR issues specific to the generation of **curl and divergence**. These spatial derivatives require consistency in  $\tau$  and  $\mathbf{U}_{10EN}$  in both the along-track and cross-track directions. Areas of missing data (such as those due to rain contamination, swath edges, or nadir gaps) pose special problems when generating curl and divergence CDRs.
11. Assess the impact of **diurnal and semidiurnal variability** on merging together satellites operating at different local times.
12. Determine the **impact of rain** on the fidelity of the OVW-CDRs. Assess the degree of inter-CDR inconsistencies that result from the rain exclusion being different for L-, C-, and Ku-band.
13. Provide an **accuracy/limitation assessment** of OVW-CDRs for climate studies. Issues to be addressed include the degradation in accuracy to due rain, extreme wind events (very low and very high), and spatial/temporal sampling issues related to producing gridded L3 and L4 products. This assessment will, in a large part, be based on the results coming from the above Tasks (i.e, the degree of consistency among the various OVW-CDRs, comparisons with radiometer/altimeter wind speeds, comparisons with buoys, the impact of rain, and such).
14. Establish the means for the CWG to interface with the **broader climate research** and modeling community outside of IOVWST. This includes the creation of a CWG website and the collaboration and coordination with other

## GCOS Guidelines for CDR generation

- 1 Full description of all steps taken in the generation of FCDRs and ECV products, including algorithms used, specific FCDRs used, and characteristics and outcomes of validation activities
2. Application of appropriate calibration/validation activities
3. Statement of expected accuracy, stability and resolution (time, space) of the product, including, where possible, a comparison with the GCOS requirements
4. Assessment of long-term stability and homogeneity of the product
5. Information on the scientific **review** process related to FCDR/product construction (**including algorithm selection**), FCDR/product quality and applications
6. Global coverage of FCDRs and products where possible
7. **Version management of FCDRs and products, particularly in connection with improved algorithms and reprocessing**
8. Arrangements for access to the FCDRs, products and all documentation
9. **Timeliness of data release to the user community to enable monitoring activities**
10. Facility for user feedback
11. **Application of a quantitative maturity index if possible**
12. Publication of a summary (a webpage or a peer-reviewed article) documenting point-by-point the extent to which this guideline has been followed