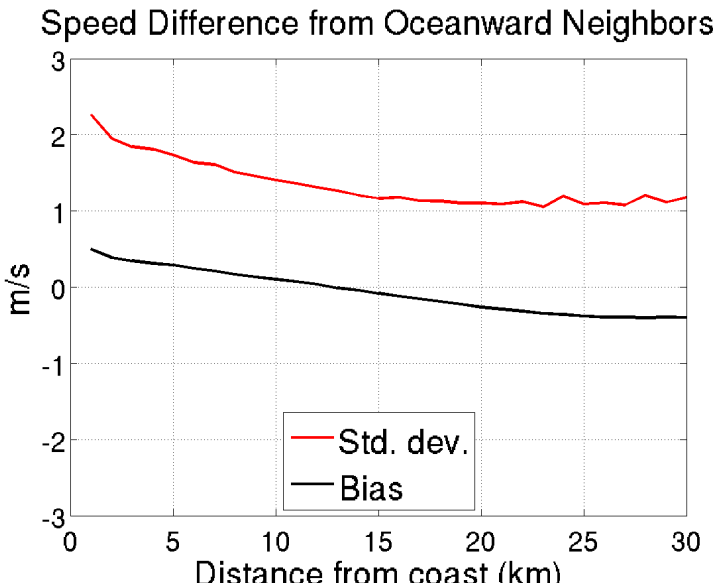
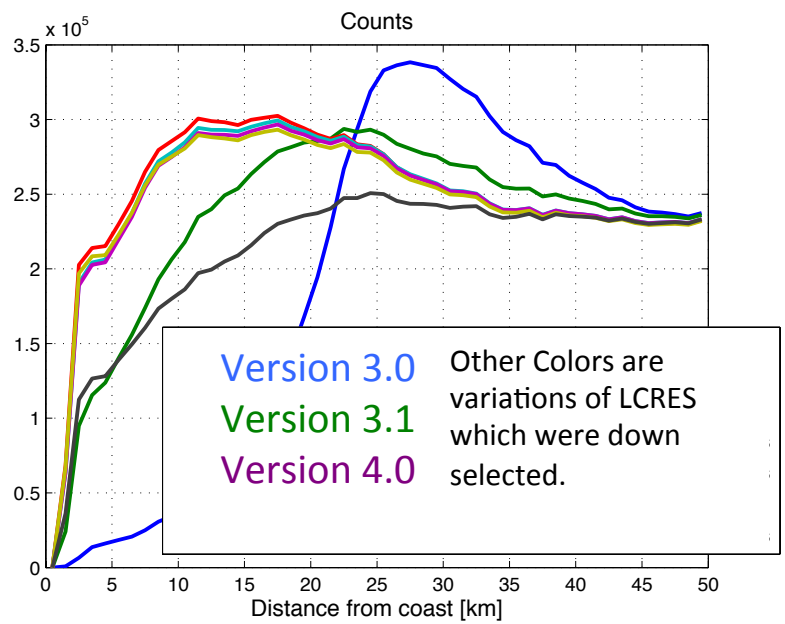
QuikSCAT Version 4 with Coastal Processing

Bryan W. Stiles[1], Alexander Fore[1], Ted Strub[2], Corinne James[2], and Alexander G. Wineteer[1] (presenting)

1. Jet Propulsion Laboratory, California Institute of Technology. 2. Oregon State University

- Version 4.0 of the 10 years of operational QuikSCAT swath wind data products will be publicly released by March 31, 2018 from Physical Oceanography Data Active Archive Center (PO.DAAC) https://podaac.jpl.nasa.gov, The new version includes:
- Coastal processing: Land Contamination Ratio and Expected Sigma-0 (LCRES) flagging and correction
  - Removes backscatter measurements for which expected land contribution is more than 0.004 (-24 dB)
  - If less than threshold, corrects for expected backscatter contribution from land
  - Uses expected land sigma-0 map computed from QuikSCAT measurements over land.
  - Retrieves wind from uncontaminated and corrected measurements
  - Reports a coregistered distance from coast quantity for each wind vector cell
- New simplified flagging strategy
  - One flag bit denotes data that is likely to be contaminated by rain, sea-ice or other less frequent issues. Excludes 3% of data. This bit is NOT set for coastal processed data.
  - Another stricter flag is also included which flags all data that has the possibility of contamination including data near land (coastal processed data) near ice, near rain, and data for which the rain flag is undetermined. Excludes 15% of data.





QuikSCAT Version 4 with Coastal Processing

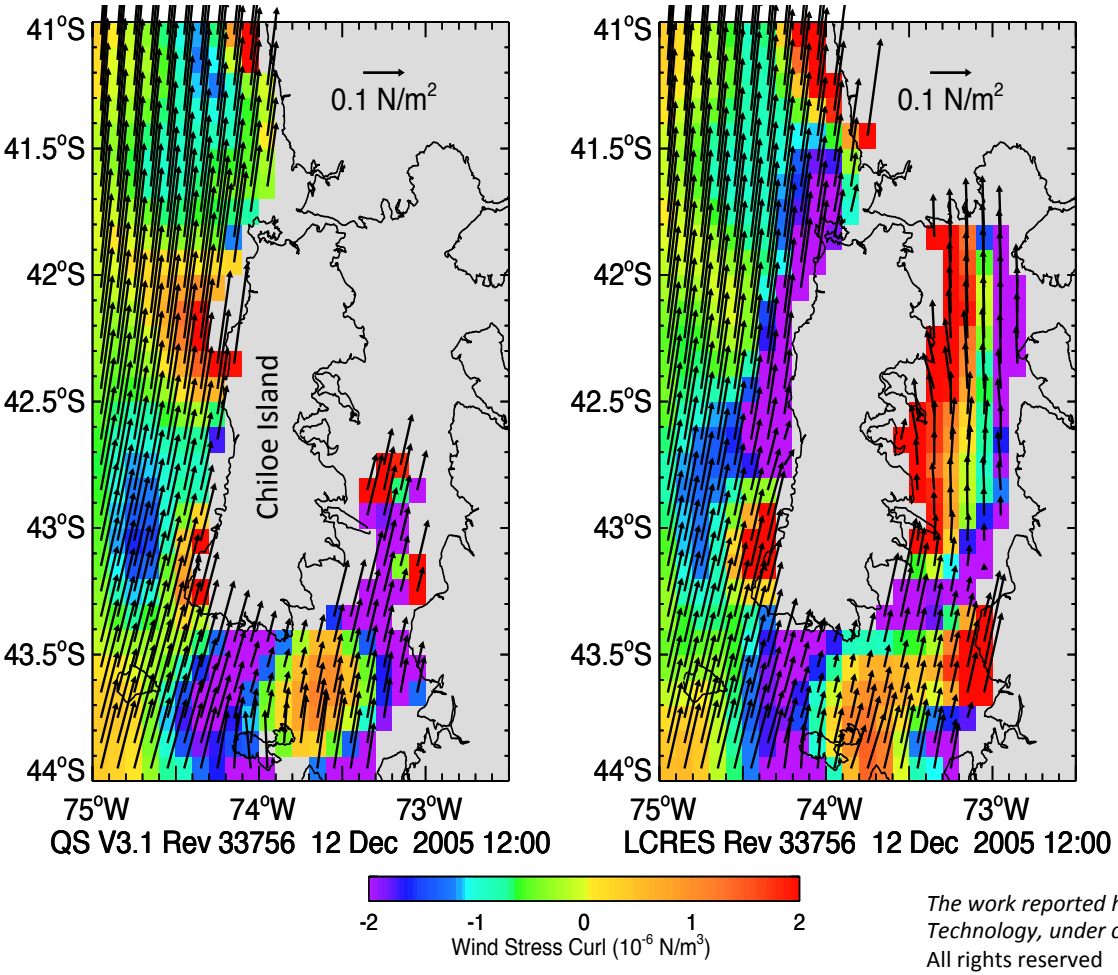
Bryan W. Stiles[1], Alexander Fore[1], Ted Strub[2], Corinne James[2], and Alexander G. Wineteer[1] (presenting)
1. Jet Propulsion Laboratory, California Institute of Technology. 2. Oregon State University

Wind Stress Curl Comparison:

QuikSCAT ver 3.1
(Preliminary Coastal Proc.)

QuikSCAT ver 4
(Final Coastal processing)

Rev 33756, 12 Dec 2005 12:00 UTC



The Chilean inland sea (east of Chiloe Island and farther south) is an important region for salmon farming and shellfish aquaculture. It is also subject to toxic algal blooms, leading to a need for wind and tide-forced ocean circulation models to characterize the advective fields.

- Global weather ---forecast models such as ECMWF underestimate winds.
- No wind information in the inland sea was available with the standard processing (version 3.0 and earlier).
- Version 3.1 with land contamination ratio processing obtains winds closer to the coast than standard processing, but the wind stress curl field does not include the coherent bands of positive and negative curl.
- Version 4 (LCRES) retrieves enough data to produce gridded fields of wind stress and wind stress curl over most of the inland sea. The coherent bands of wind stress curl next to the coasts are consistent with a decrease of the northward winds next to land. This effect increases upwelling in regions of negative curl.

The work reported here was performed at the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration. © 2017. All rights reserved