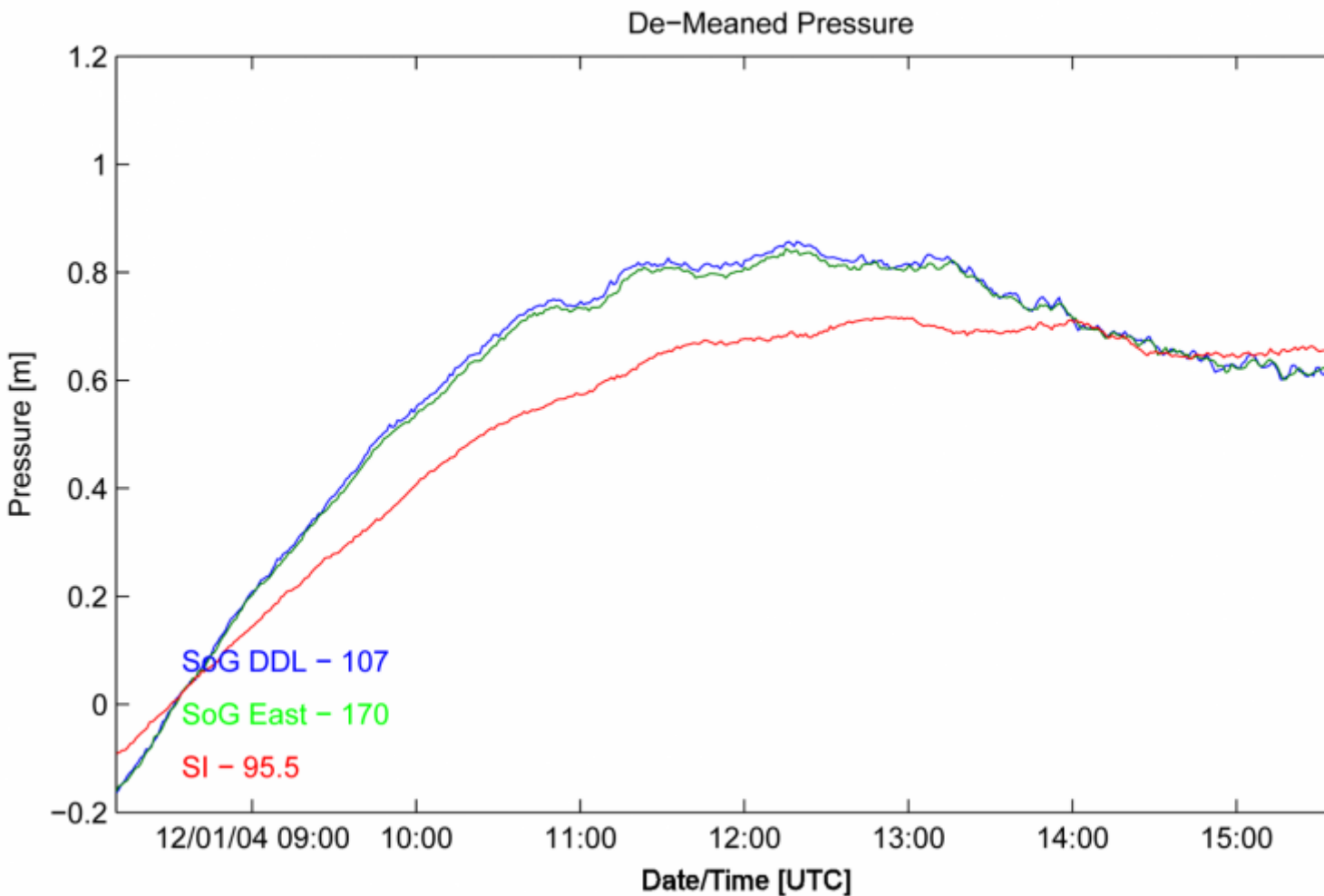


Oscillatory "Sloshing" in the Salish Sea? ^[1]

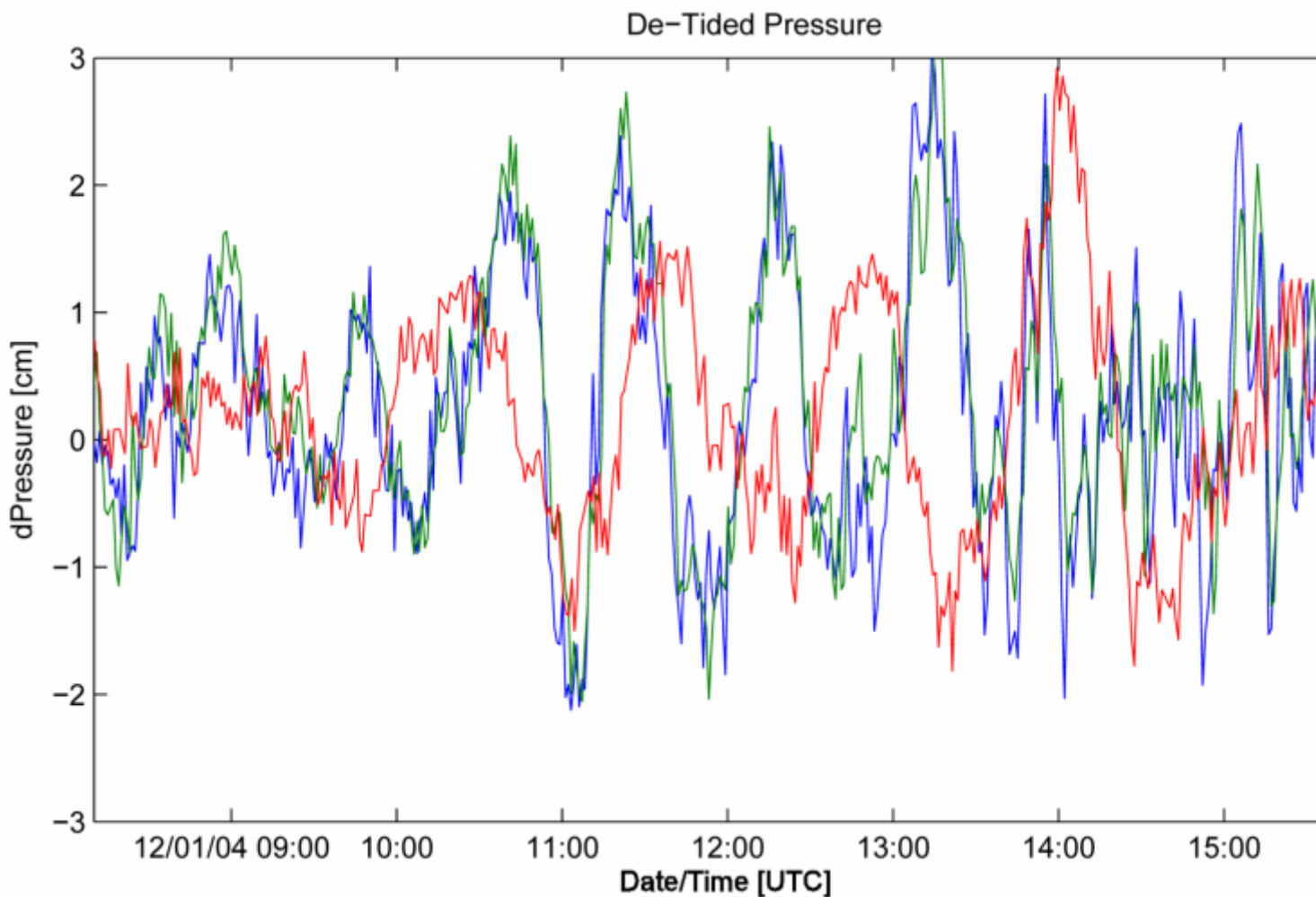
Submitted by Rory Lattimer Mon, 2012-01-09 00:00



[2] Ocean Networks Canada has a variety of pressure gauges deployed at most sites. On the VENUS observatory, the primary pressure sensor is the "depth" sensor on our Seabird CTDs ^[3], which measured the total water depth above the sensor, plus any atmospheric fluctuation/system passing overhead. The primary signal, evident on most of our plot gallery pages, are the tides, which have amplitudes of a few metres and are semi-diurnal, in that there are generally two high tides and two low tides each day (24-hour period). Superimposed

on these tidal variations in total water depth are small signals associated with other long surface waves and atmospheric disturbances.

During a period last week (4 January 2012) there were a number of wave-like perturbations picked up across the pressure sensors on VENUS. Shown in the figure above are portions of the demeaned Seabird CTD pressure records from the [Fraser Delta](#) [4], [Eastern Strait of Georgia](#) [5], and [Saanich Inlet](#) [6] sites (mean values of 107, 170, and 95.5 m respectively). As the tide nears high water at noon UTC on January 4, a series of 'waves' is evident. In the figure below we have further processed these records to remove the tidal part of the signal (high-pass filtered). What remains is the fluctuating part of the pressure signal, where distinct wave-like oscillations of 4-5 cm height can be seen.



[7]

The source of these waves is not immediately known, although atmospheric fronts were passing through at the time, which can establish seiche-like modes in the basins and inlets that would cause oscillatory 'sloshing'. The [Eastern Strait of Georgia](#) [5] and [Fraser Delta](#) [4] signals are nearly exactly in phase, while the [Saanich Inlet](#) [6] variations are both out of phase and have a different (longer) period. Such waves do appear in the records occasionally, but usually only in one, or proximal, stations.

Tags:

- [sloshing](#) [8]
- [waves](#) [9]
- [CTD](#) [10]
- [oscillations](#) [11]
- [seiche](#) [12]

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- [Data Highlights](#) [13]

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(function () { var d = new Date; var year = d.getFullYear();  
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Source URL: <http://www.oceannetworks.ca/oscillatory-sloshing-salish-sea>

Links:

- [1] <http://www.oceannetworks.ca/oscillatory-sloshing-salish-sea>
- [2] http://www.oceannetworks.ca/sites/default/files/images/pages/data/IOTW_pressure-01_0.png
- [3] <http://www.oceannetworks.ca/installations/infrastructure/instrument-info/5>
- [4] <http://www.oceannetworks.ca/installations/observatories/salish-sea/fraser-delta>
- [5] <http://www.oceannetworks.ca/installations/observatories/salish-sea/eastern-strait-georgia>
- [6] <http://www.oceannetworks.ca/installations/observatories/salish-sea/saanich-inlet>
- [7] http://www.oceannetworks.ca/sites/default/files/images/pages/data/IOTW_pressure-02_0.png
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