

(42-220415-B) **New System to Measure Carbonyl Sulfide in Air Samples from Baring Head and Fiordland National Park, New Zealand**

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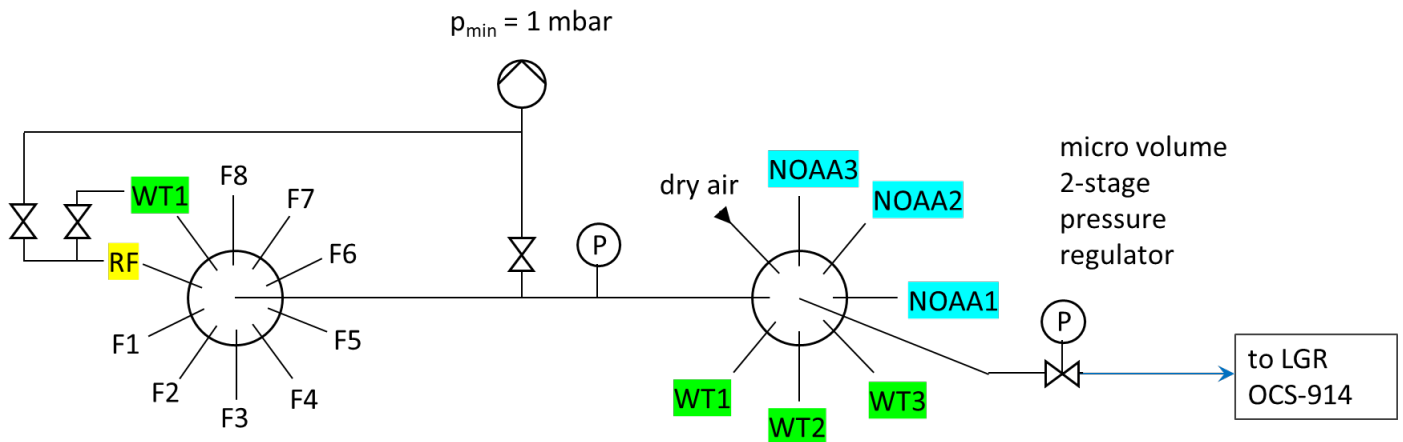
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One of the largest uncertainties in future climate predictions stems from the uncertainty of future atmospheric CO<sub>2</sub> levels. In order to make robust predictions of the atmospheric CO<sub>2</sub> load, a sound understanding of present-day CO<sub>2</sub> fluxes is vital. Measurements of carbonyl sulfide (COS) have been suggested as a powerful tracer for gross primary production (GPP) as the most significant flux of terrestrial CO<sub>2</sub> uptake.

We are currently developing a new analytical system that combines a commercial, continuous-flow COS analyser (Los Gatos Research) with a custom-build sample inlet for measurements of COS in flask samples (Fig. 1). We describe the instrument components as well as our strategy for quality control and instrument calibration. This allows an assessment of the measurement performance we currently achieve. Finally, we will show first results from Baring Head (BHD), our Southern Hemisphere baseline observatory and measurements of air samples taken in Fiordland National Park, a native forest at the south-western tip of New Zealand's South Island.

The presented system will support CarbonWatch NZ, a research programme to quantify national CO<sub>2</sub> fluxes in New Zealand.



**Figure 1.** Figure 1: Schematic of the measurement system for COS at NIWA.