

Fig. 1: Comparison between the measured background and modelled (black) noon-time H<sub>2</sub> mixing ratios at Assekrem, the Baltic Sea, Cape Ferguson and Cape Kumakahi. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.

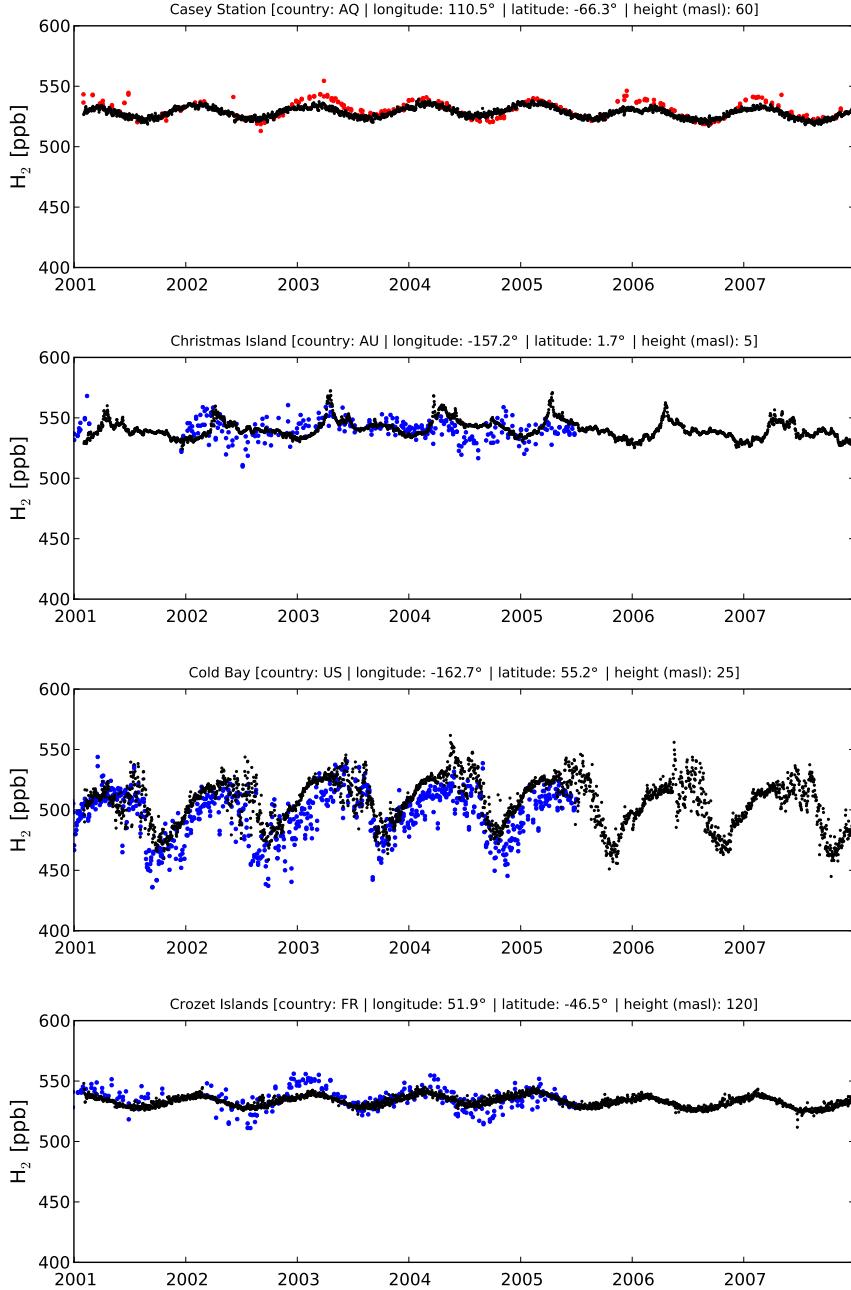


Fig. 2: Comparison between the measured background and modelled (black) noon-time  $\text{H}_2$  mixing ratios at Casey station, Christmas Island, Cold Bay and the Crozet Islands. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.

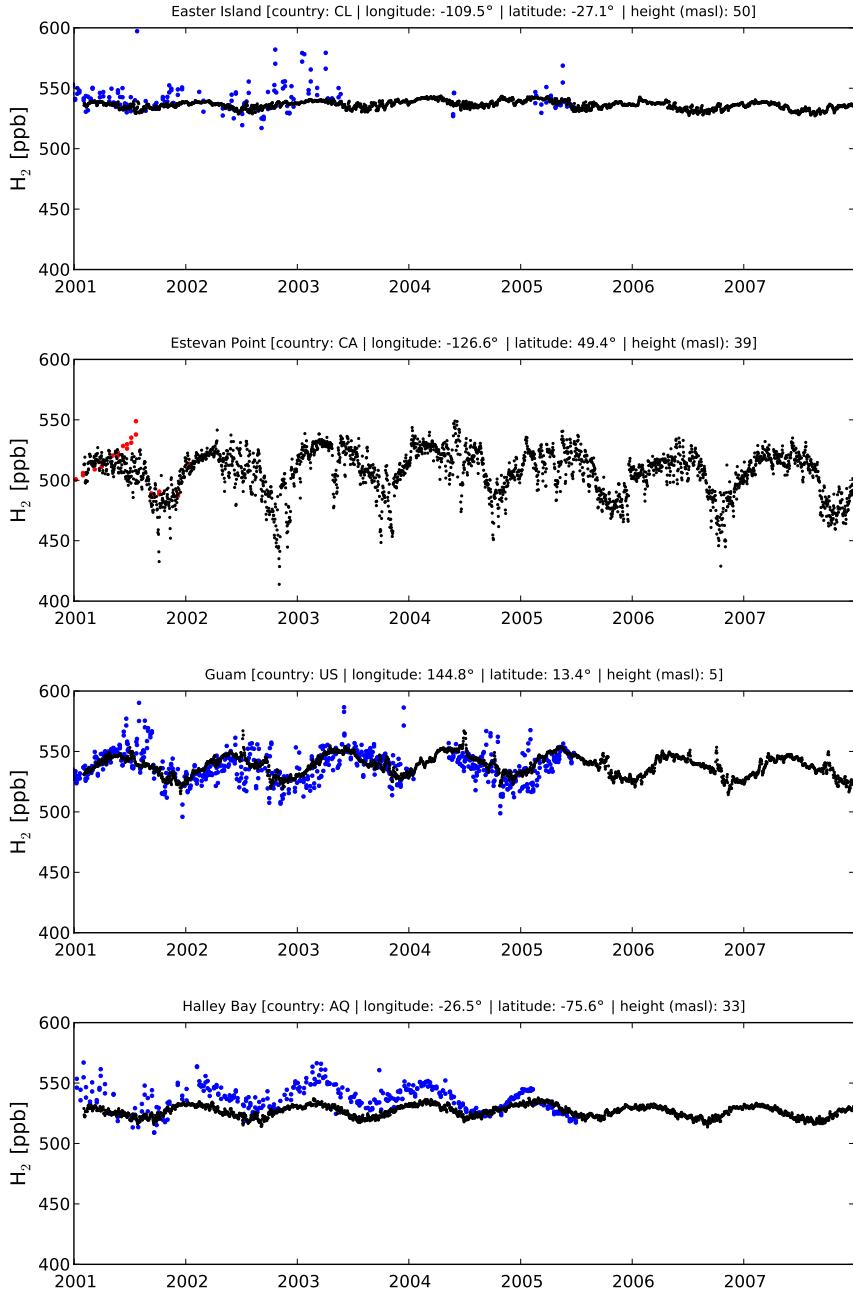


Fig. 3: Comparison between the measured background and modelled (black) noon-time  $\text{H}_2$  mixing ratios at Easter Island, Estevan Point, Guam and Halley Bay. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.

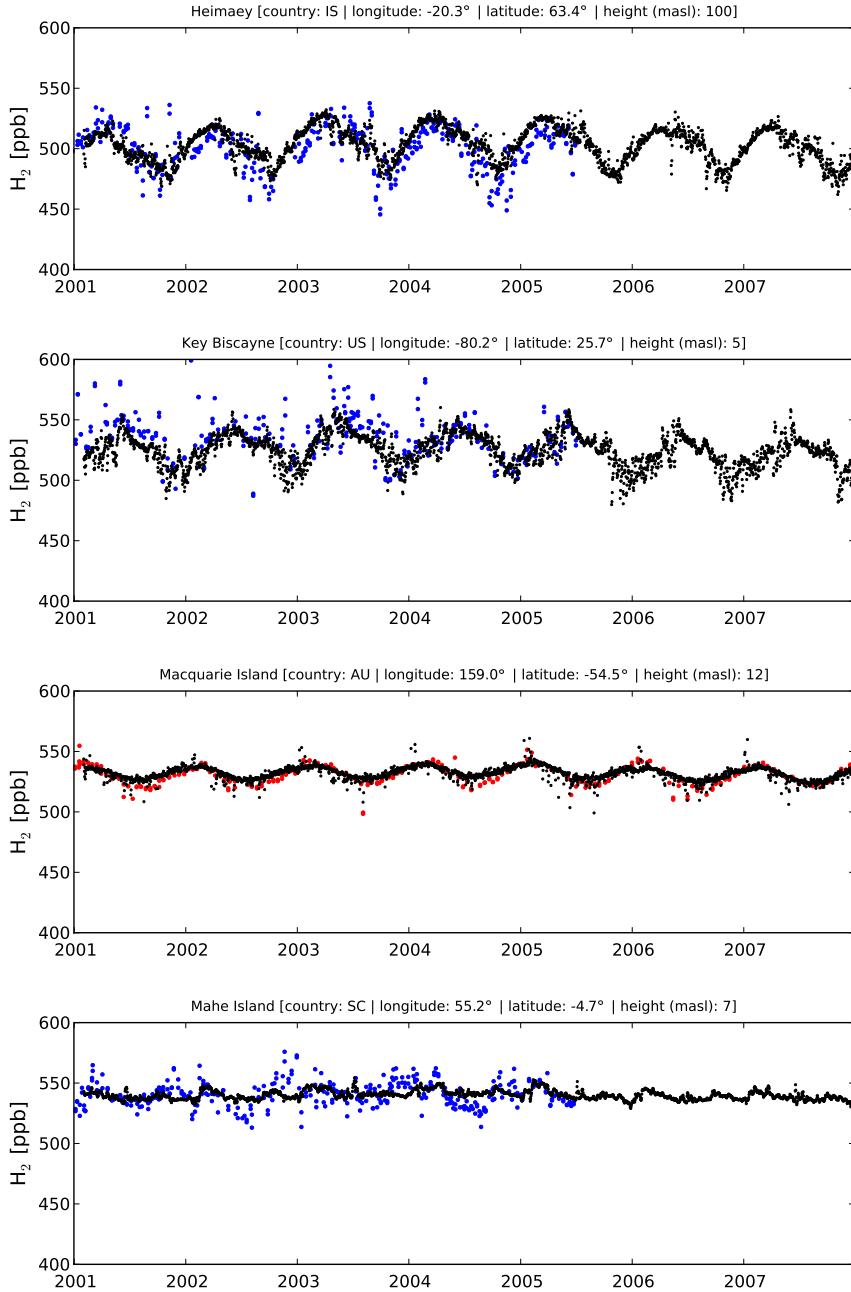


Fig. 4: Comparison between the measured background and modelled (black) noon-time  $\text{H}_2$  mixing ratios at Heimaey, Key Biscayne, Macquarie Island and Mahe Island. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.

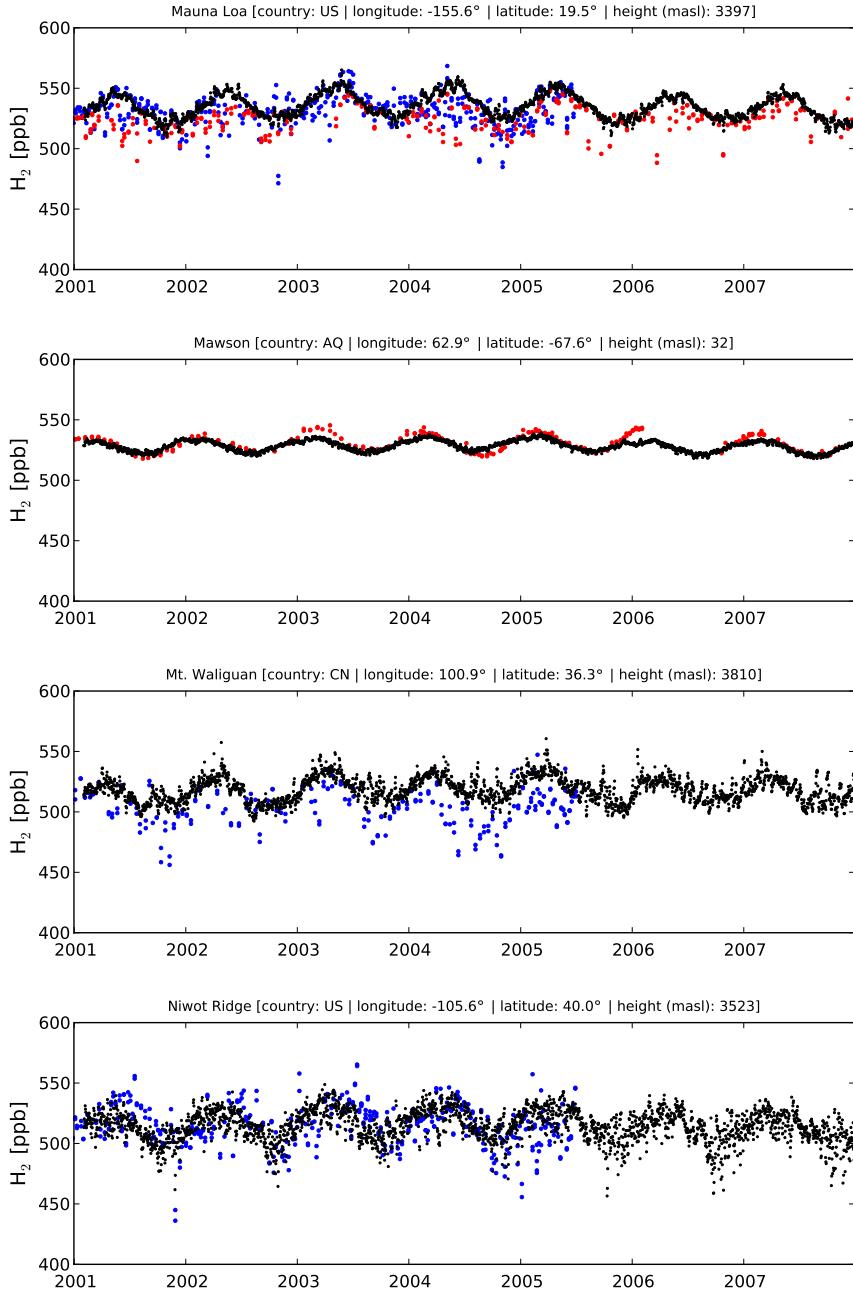


Fig. 5: Comparison between the measured background and modelled (black) noon-time H<sub>2</sub> mixing ratios at Mauna Loa, Mawson, Mt. Waliguan and Niwot Ridge. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.

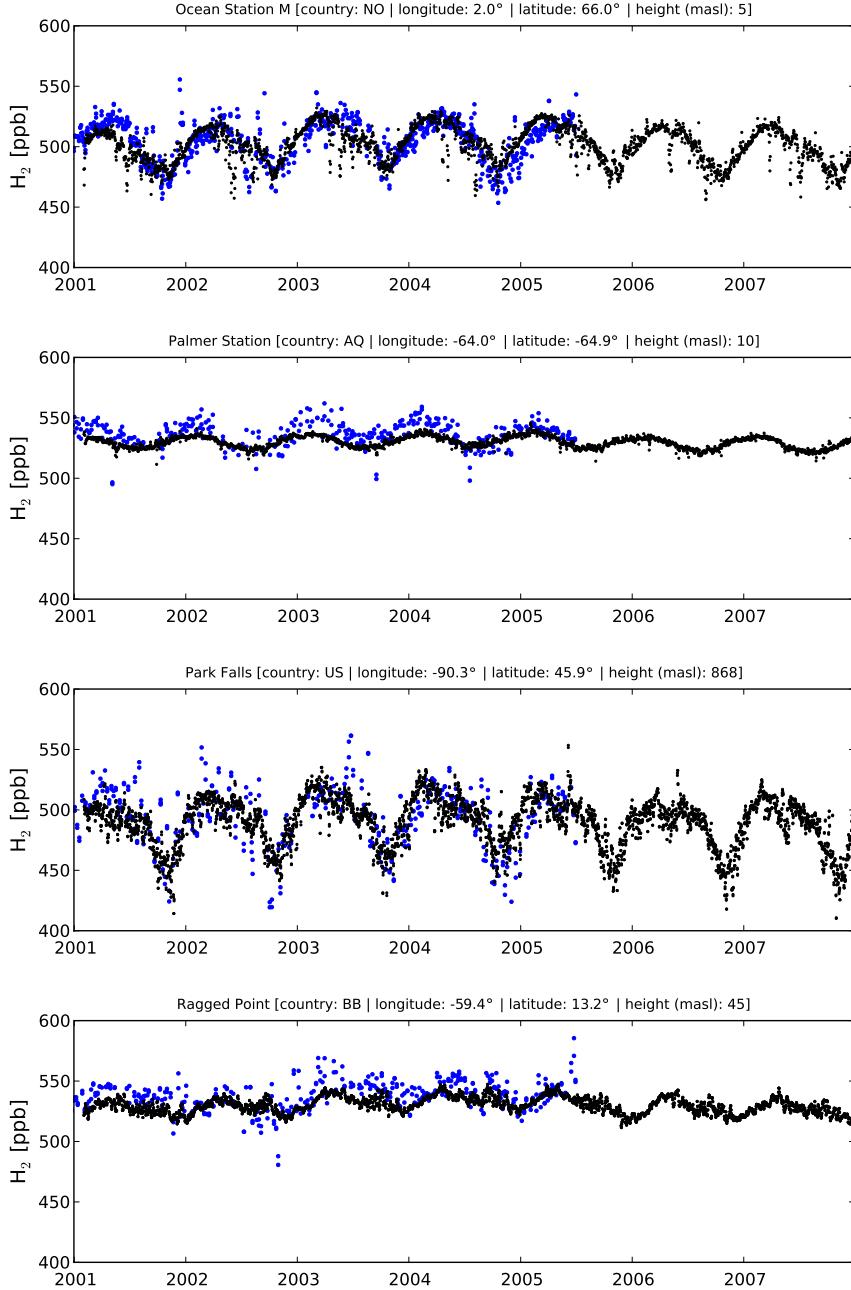


Fig. 6: Comparison between the measured background and modelled (black) noon-time  $\text{H}_2$  mixing ratios at Ocean Station M, Palmer Station, Park Falls and Ragged Point. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.

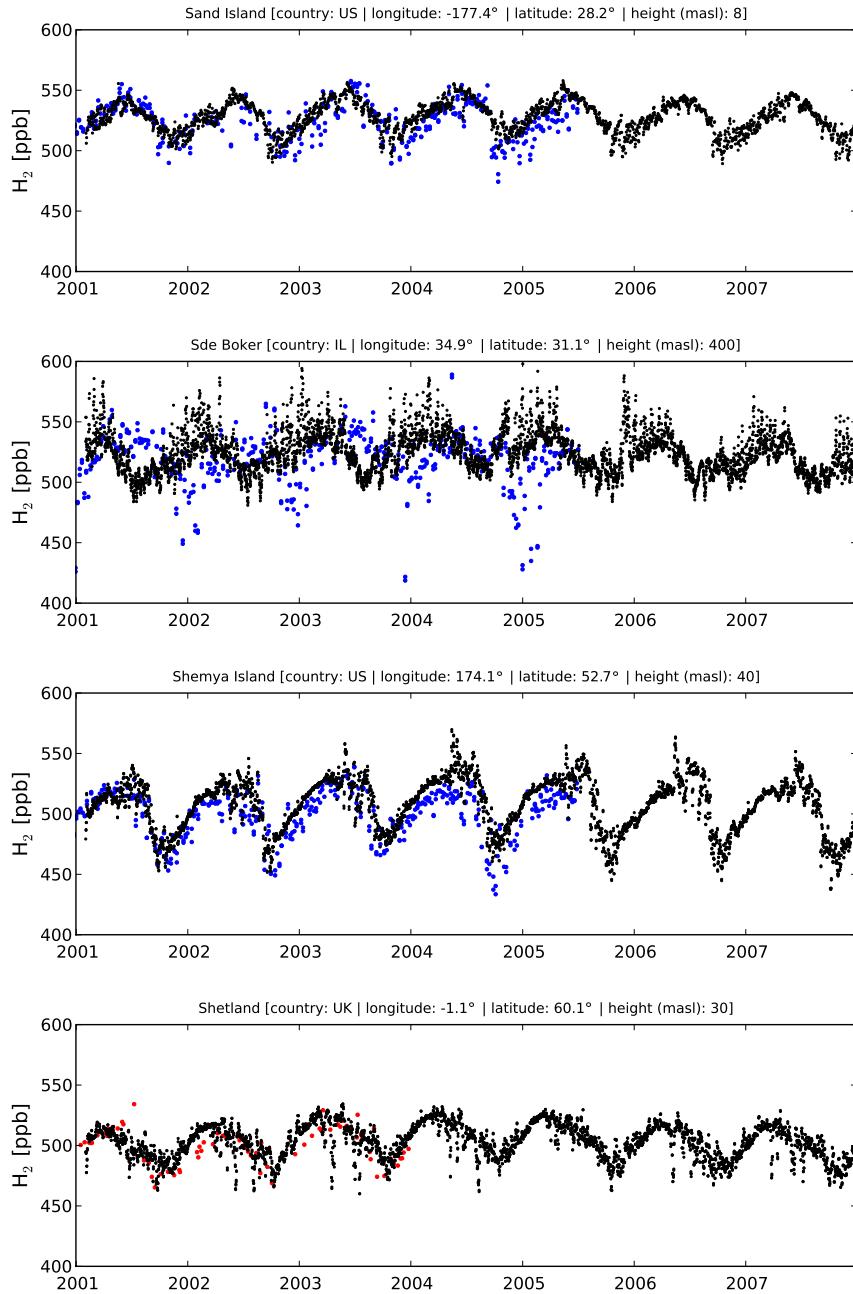


Fig. 7: Comparison between the measured background and modelled (black) noon-time H<sub>2</sub> mixing ratios at Sand Island, Sde Boker, Shemya Island and the Shetland Islands. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.

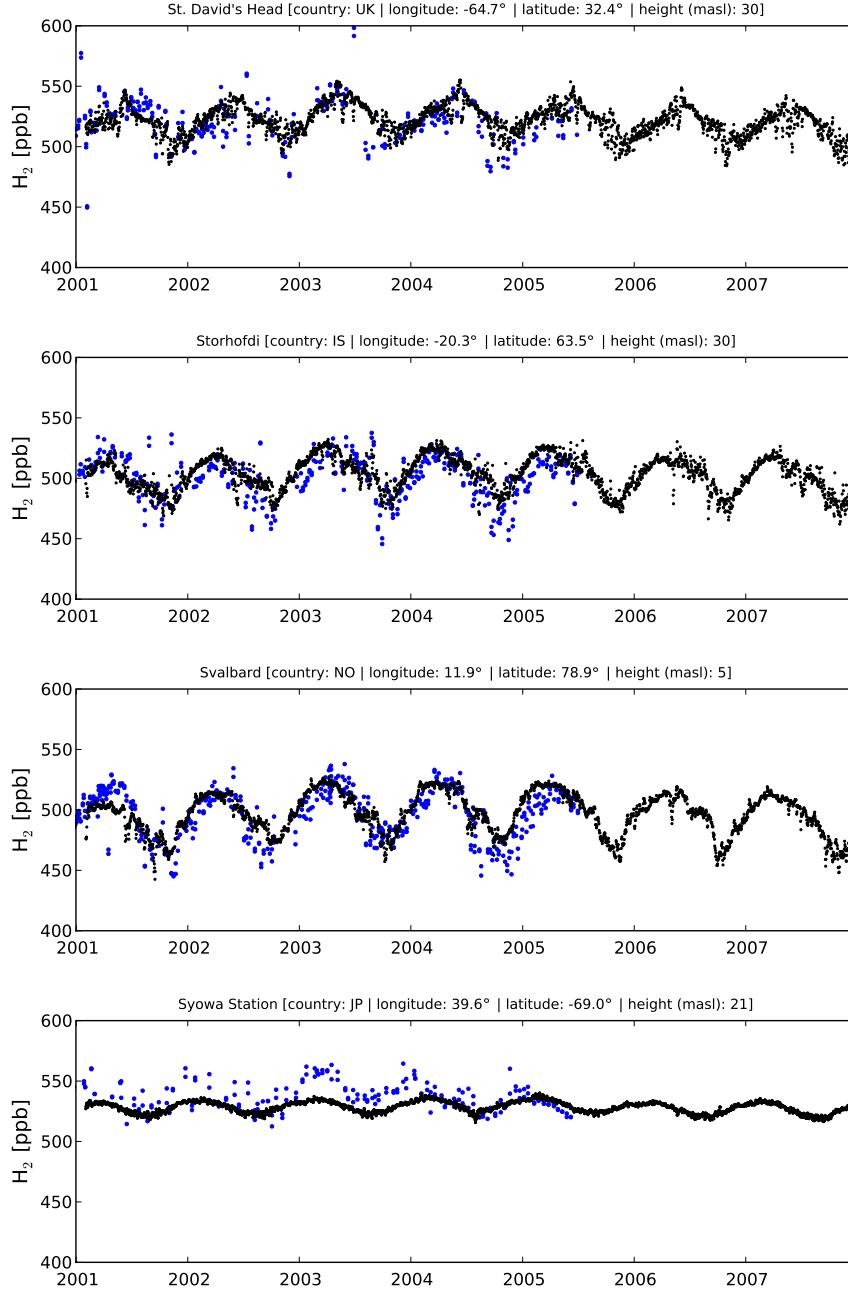


Fig. 8: Comparison between the measured background and modelled (black) noon-time H<sub>2</sub> mixing ratios at St. Davids Head, Storhofdi, Svalbard and Syowa Station. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.

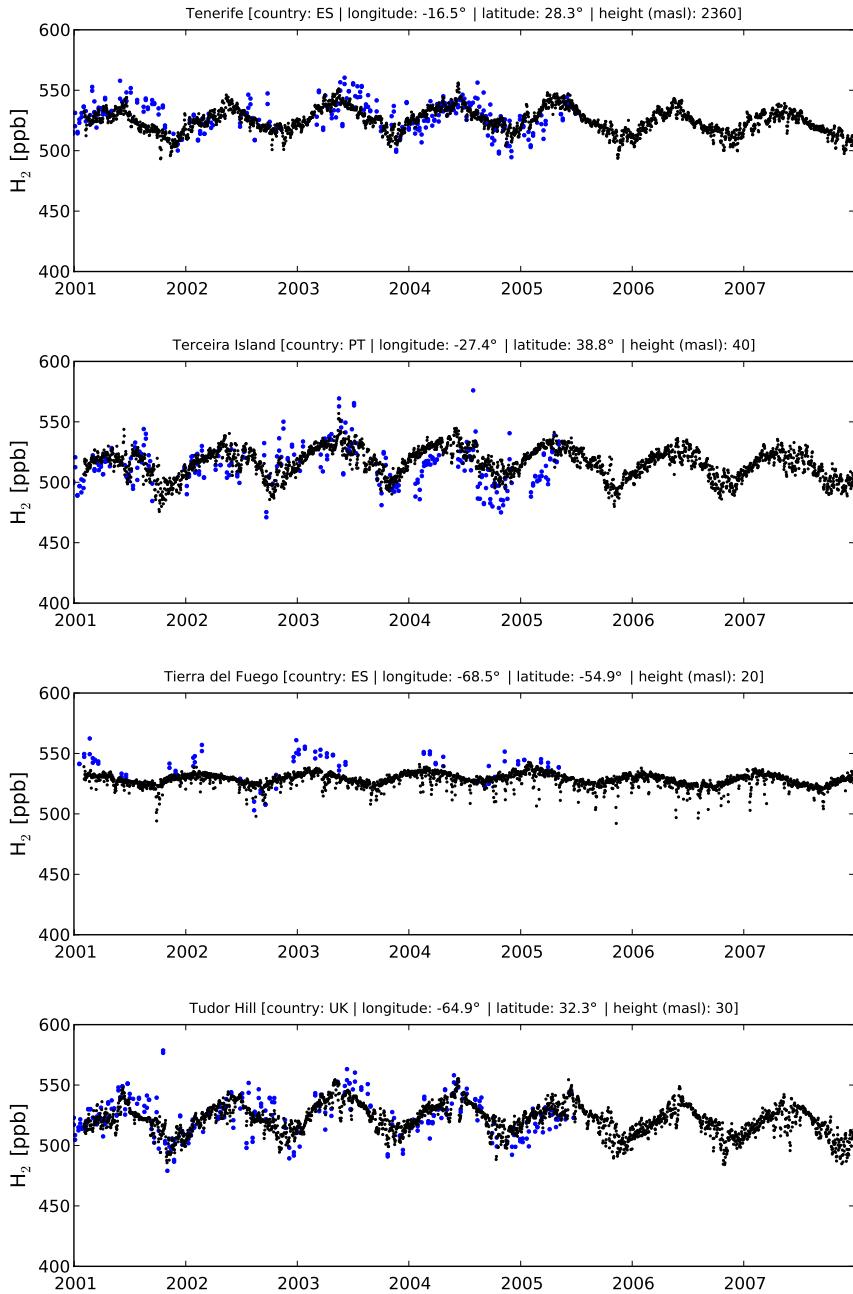


Fig. 9: Comparison between the measured background and modelled (black) noon-time H<sub>2</sub> mixing ratios at Tenerife, Terceira Island, Tierra del Fuego and Tudor Hill. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.

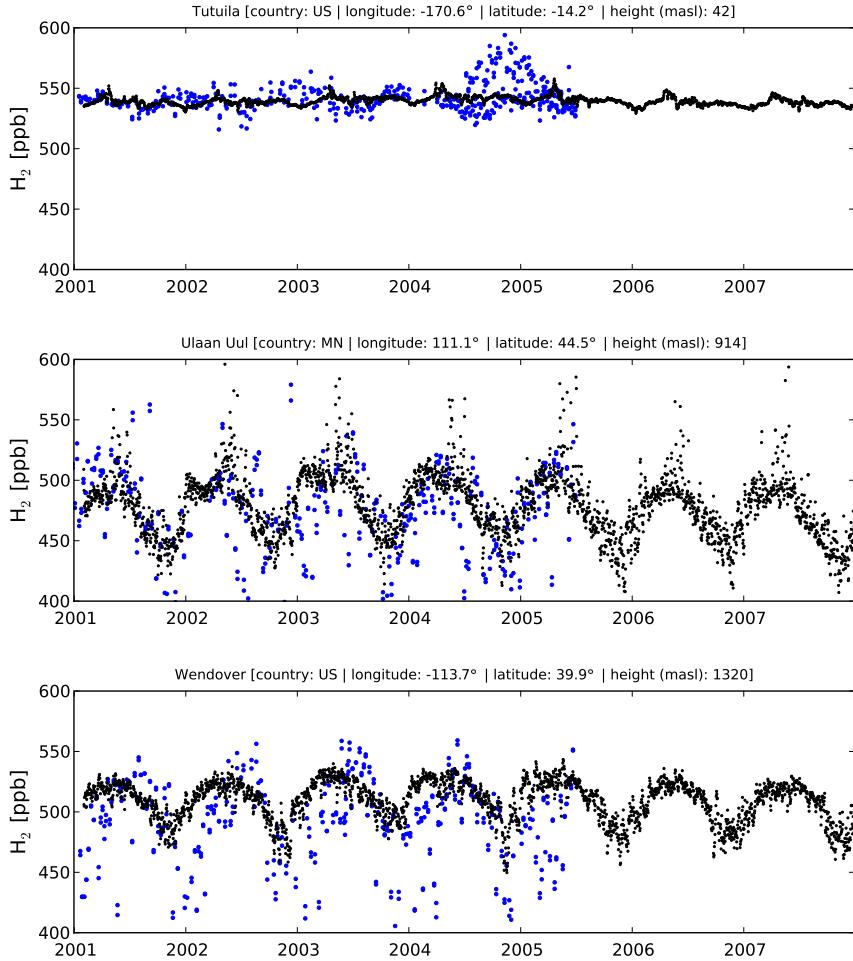


Fig. 10: Comparison between the measured background and modelled (black) noon-time H<sub>2</sub> mixing ratios at Tutuila, Ulaan Uul and Wendover. Available measurements from NOAA, CSIRO and AGAGE are shown in blue, red, and grey, respectively. Measurements from AGAGE are shown without filtering for background conditions.