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Hiatus in global mean temperature: data coverage issues inspected with Radio Occultation data

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The recent hiatus in global mean surface temperature has been suggested to partially being due to data coverage issues in the Arctic. Attempts have been made (Cowtan and Wey, 2013) to quantify the importance of this problem, using satellite-based microwave sounding data. MSU data have known problems in the Arctic, and we want to assess this by use of independent tropospheric data from Radio Occultation (RO) measurements.

The RO technique allow accurate and precise determination of atmospheric properties through observation of the phase delay of GPS radio signals propagating through the Earth's atmosphere in a limb sounding geometry. RO data now exists since 2001, allowing formation of global and zonal means of tropospheric properties, e.g temperature and geopotential heights.

We will use these data to illuminate the role of data coverage on the hiatus problem by looking at the difference between complete and spatially decimated RO datasets. Using CMIP5 climate model output we look at the same properties, also selectively decimated, and compare to the RO data.