David Hofmann's Pioneering Observations of Stratospheric Volcanic Aerosols

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Volcanic eruptions are one of the two most important natural causes of climate change (the other being solar variations). Our current understanding of the role of volcanic eruptions on climate would not be possible without the pioneering observations of volcanic stratospheric aerosols led by David Hofmann. Hofmann and his colleagues used balloons for *in situ* measurements of the chemistry and size distribution of sulfate aerosols, and these data are used worldwide for climate modeling. In addition, they used lidars for stratospheric aerosol monitoring for decades, and those retrievals depend on knowledge of the aerosol properties obtained by in situ sampling. I will review these observations and explain our current understanding of the role of volcanic eruptions in climate change, pointing out the role of in situ and lidar observations. On a personal note, I feel like I am Dave Hofmann's academic great grandson, having worked in Antarctica measuring ozone and polar stratospheric clouds for Jennifer Mercer, postdoc of Terry Deshler, who was mentored by Dave. I have been to Antarctica once, but Dave has been 19 times, and I feel honored to have been able to follow in his footsteps.

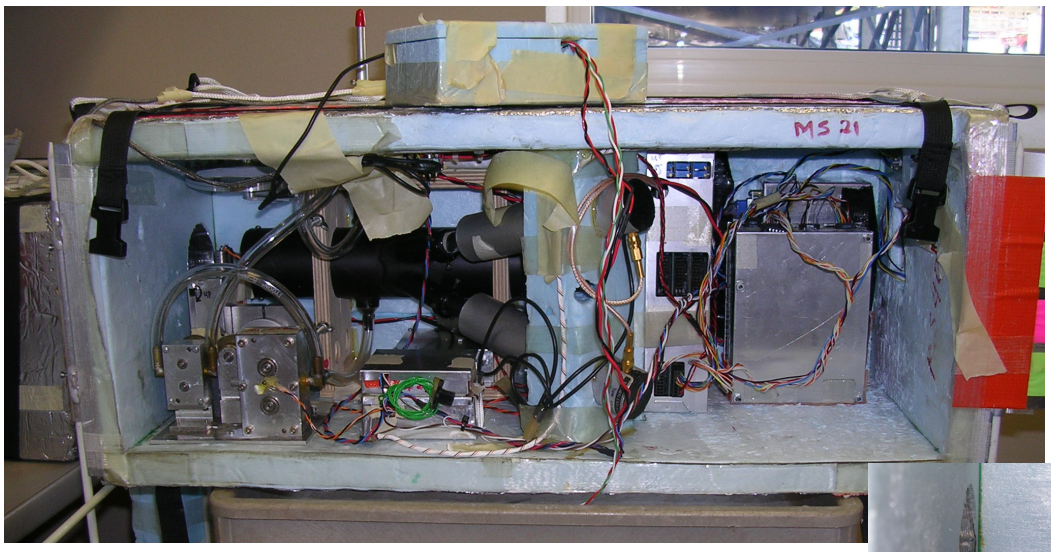

Figure 1. Hand-made University of Wyoming aerosol detector sent up by balloons in Antarctica. They have to be recovered, because of the large investment in each.

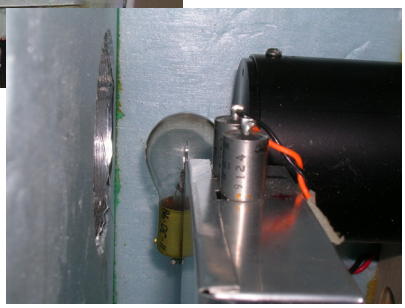

Figure 2. The light source is a 1967 VW taillight bulb, the only source known to produce a completely flat light source.