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The ExoMars-Humbold SEIS experiment

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The ExoMars Seismometer is an instrument of the Humbold payload on board the next ESA Mars mission “Exomars”. It is dedicated to the study of the seismic activity of the red planet and will allow to evaluate the frequency of meteorites impacts. The seismometer will also allow to characterize shallow and deep interior of the planet, and especially the water environment as a function of depth in the deep subsurface, the crustal thickness of the landing site, the core size and possibly, if the seismic activity is between the middle and upper bound of present estimates, the mantle structure. The seismometer is based on an hybrid 4 axis instrument, composed of 2 Very broad Band (VBB) sensors and 2 Short Period (SP) sensors, and relies on the heritage of the Netlander study. Its mass in the ExoMars configuration is about 2200 gr, including margins. The instruments encloses also a 24 bits acquisition electronics, and a mass memory to store the data during the night, when then Humbold payload service module is in sleeping mode. Main software is foreseen to be implemented in lander service module. We show the results of the most recent tests, including those of the thermal compensation calibration , as well as the seismic records. Preliminary noise results demonstrate that the noise of the SEIS is close to our STS2 reference instrument, despite a much smaller mass. The TRL level of the modified instrument will be around 5 for the instrument PDR in mid 2008.