

# SurVenTIS - Surface of Venus Thermal Imaging System

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VIRTIS on Venus Express will provide us with the first global mapping of surface types on Venus (Helbert et al., this meeting). While correction algorithms can reduce cloud induced contrast variations, the scattering in the clouds will always result in blurring. This limits the achievable spatial resolution from orbit to about 50km. A balloon or descent probe which would allow taking a thermal imaging system below the main cloud deck would reduce this problem significantly. The technical limitation of such platforms would not allow carrying any instrument like VIRTIS. Therefore we propose SurVenTIS, a miniaturized instrument specifically designed for studying the surface composition of Venus on spatial scales intermediated between orbital and in-situ data. Depending on the mission profile a surveyor of geological interesting regions can be performed as well as investigations on the local heterogeneity in the surface composition and its link to recent volcanism. In combination with other instrumentation the interaction between surface and atmosphere and especially the question of chemical erosion can be addressed. Finally a search for thermal anomalies indicating volcanic activity can be performed with high spatial resolution.

SurVenTIS is a near-IR imager with 6 filters taking advantage of the spectral windows in the atmosphere of Venus. The filters are selected to study albedo variations, oxidation state of the surface and derive compositional information. At least one filter will allow imaging from high altitudes and overlaps with the spectral coverage of VIRTIS on Venus Express. Due to the inherent blurring by cloud and haze particles a 256\*256 CCD/CMOS pixel array with FOV of 10°/15° is sufficient and greatly simplifies the design. It is a simplified and miniaturized instrument concept based on proven technology. It benefits from extensive heritage in IR technology and camera development at DLR as well as from the heritage for the data analysis directly derived from VIRTIS on Venus Express.