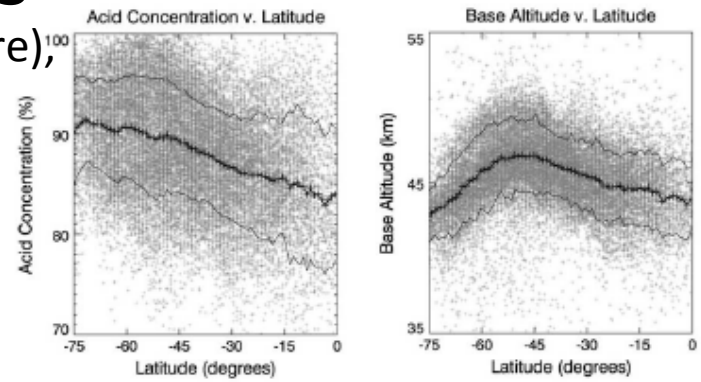
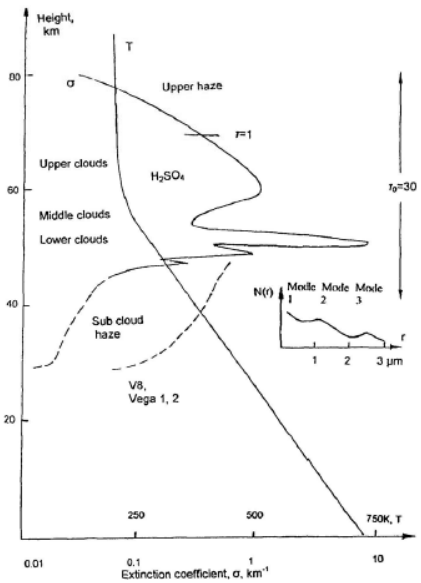
Desired Measurements

All Measured over Altitude (Pressure), Latitude, Time-of-Day:





cheme of the vertical structure of the aerosol medium in the atmosphere of Venus.

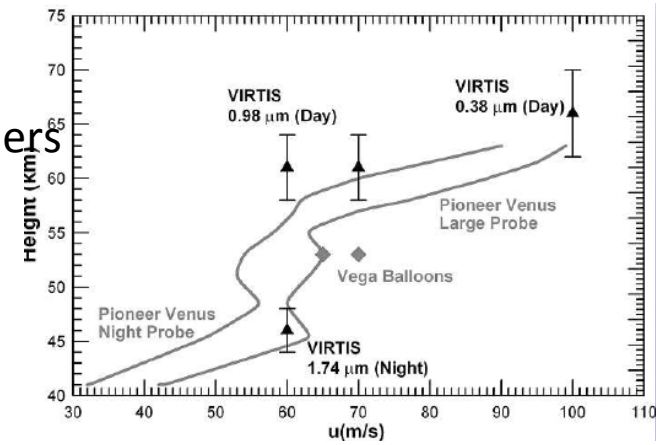
Aerosol Properties
- Particle size/Number density
- Particle composition
- n_r, n_i from UV to Near-IR

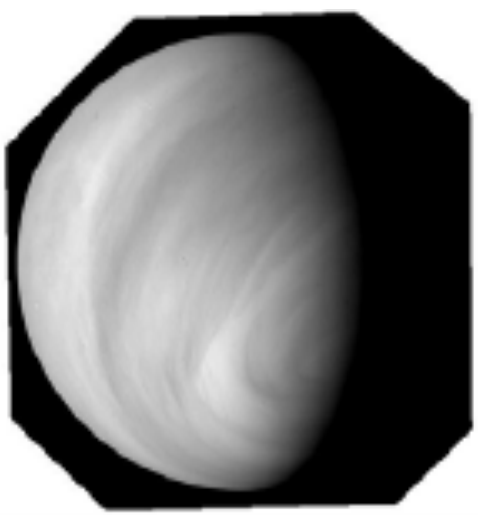
Trace gas abundances
- SO_2, H_2O, CO,OCS, HCl, HF,O_3, others
- CO_2 above.below feezing level?

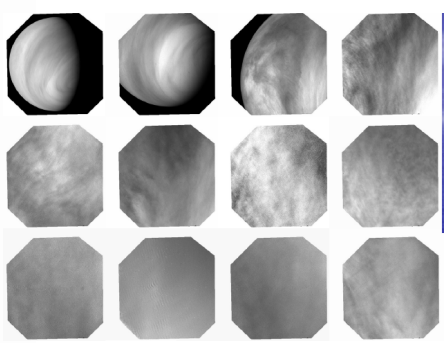
Winds
- Zonal component
- Meridional componet
- Vertical component

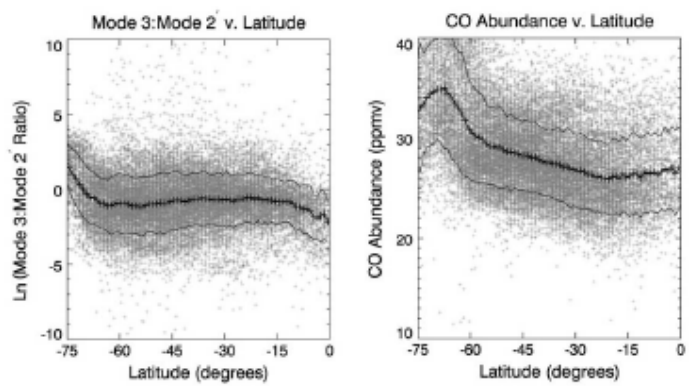
Lightning

Airglow (NO, O_2)









Science Objective	Measurement Parameter	Altitude, Latitude,Longitude, Time-of-Day, Time etc (Altitude Assessing > 36 km)	Possible Techniques	Comments
Aerosol Properties (Chemistry, Radiative Balance, Meteorology)	Particle Size, Number Density	36-80 km, equator-pole, D/N, Time	Nephelometer; GRC Miniaturized Particulate Sensor	67-75 km range: Cloudtop variability
	Particle Composition	36-80 km, equator-pole , Time	Nephelometer, GCMS	Special emphasis: UV absorber (58-66 km)
	n_r, n_i (UV-Near-IR)	36-80 km, equator-pole, Time	Nepholometer , In-Situ Spectrometer	
	Opacity (per km alt); UV-Near-IR)	36-80 km, equator-pole, Time	Nephelometer, UV-NIR spectrometer (Or, for Radiative Balance: Net Flux Radiometer) on climbing/descending platform, e.g. GRC CERES)	
Trace Gas Abundances (Chemistry, Dynamics, Circulation, Meteorology)	SO_2	36-80 km, equator-pole, D/N	GCMS, MEMS, NIR Spectrometer	Spectrometers > 1/2 scale height resolution, due to cloud scattering
	H_2O, OCS, HCl, HF, O_3	36-80 km, equator-pole, D/N	GCMS, MEMS, NIR Spectrometer	
	CO	36-80 km, equator-pole	TLS, MEMS	
	HDO	36-80 km, equator-pole, D/N	GCMS, NIR spectrometer	
	NO (associated with lightning)	36-60 km, equator-pole, D/N	MEMS (?) ; GCMS (?)	Precision needed: about 0.1 ppb
Winds (Dynamics, Circulation, (Circulation, Dynamics, Meteorology)	Zonal Wind (Circulation)	36-140 km, Eq-Pole, all TOD/long, Time	Cloud tracking; Doppler/LIDAR; in-situ platform tracking;	Cloud Tracking: Different altitudes for Day vs Night
	Meridional Wind (Circulation)	36-140 km, Eq-Pole, All TOD/long, Time	High-spatial-res Cloud track; LIDAR; in-situ platform track	Dayside/Nightside Measurements needed for Circulation and Latitude (mixing)
	Vertical wind (Convection, waves, turbulence)	36-140 km, Eq-Pole, All TOD/long, Time	In-situ platform tracking; Doppler LIDAR	
Lightning (Meteorology)	Strength (watts/flash)	In clouds, Eq-Pole, TOD, Time	In-situ detector	
	Frequency	In clouds, Eq-Pole, TOD, Time	In-situ detector	
Airglow (Circulation, Chemistry)	NO_2	Near 95 km alt; ~ Anti-Sub-Solar Point	GCMS(?); Spectrometer	
	O_2	Near 180 km alt; ~Anti-Sub-Solar Point	N-IR Spectrometer	