

Doppler Wind Experiment (DWE)

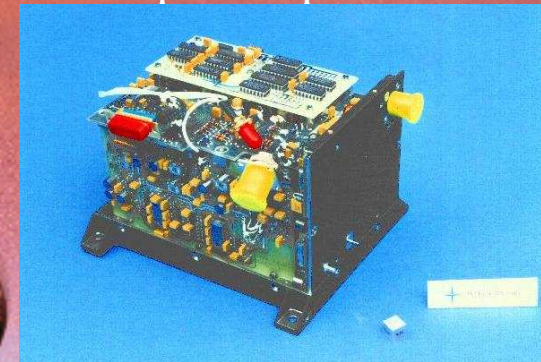
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Co-Is: USA (4), Germany (3), Italy (1)

- Doppler: measurement technique
 - Record frequency (Doppler) shift of Huygens radio signal to Cassini Orbiter

- Wind: scientific objective
 - Determine drift motion of Huygens due to Titan's winds in the altitude range 0-160 km with an accuracy ~ 1 m/s
 - Increase knowledge about the dynamics of planetary atmospheres

- Experiment hardware:
 - Ultra-stable oscillators (USOs) for transmitter and receiver
 - First utilization of Rb-based USOs for space exploration



- Expectations:
 - strong zonal winds (~ 0 near the surface - > 100 m/s at 150 km altitude), most probably prograde (west \rightarrow east)
 - negligible meridional (north \leftrightarrow south) and vertical winds (cm/s)

Additional information available at
<http://www.astro.uni-bonn.de/~dwe/>