

Abstract

The positive height gradient in the D/H ratio found above the Venus clouds is checked by examining the low and middle latitudes data of SOIR(solar occultation in infrared) spectrometer on board Venus Express. It is confirmed that such gradient really exists even at low and middle latitudes. For the mechanism to produce such gradient, fractionations due to differential escape and due to differential phase change are proposed.



Object : Site height: Telescope diameter: Spectral resolution: Slit width: Slit length: Pixel pitch:	Daysid 4,200 n 30,500 0.5" 30" 0.2"	le reflected s m) (measured)	unlight		
Table 2: Observatior	n param	eters May 2007	Nov 2007	Aug 2010	
Table 2: Observatior Date (HST*)	n param	eters May 2007 	Nov 2007 	Aug 2010 	
Table 2: Observatior Date (HST*) Time (HST, hours)	n param	eters May 2007 25–31** 18–21	Nov 2007 10–13 05–10	Aug 2010 2–9 15–18	
Table 2: Observatior Date (HST*) Time (HST, hours) Venus diameter (")	n param	eters May 2007 25–31** 18–21 20.5	Nov 2007 10–13 05–10 20.9	Aug 2010 2–9 15–18 21.1	
Table 2: Observatior Date (HST*) Time (HST, hours) Venus diameter (") Obliquity (CCW, deg	n param 	eters May 2007 25–31** 18–21 20.5 7.9	Nov 2007 10–13 05–10 20.9 22.8	Aug 2010 2–9 15–18 21.1 22.8	
Table 2: Observatior Date (HST*) Time (HST, hours) Venus diameter (") Obliquity (CCW, deg Phase angle (deg)	n param 	eters May 2007 25–31** 18–21 20.5 7.9 83	Nov 2007 10–13 05–10 20.9 22.8 81	Aug 2010 2–9 15–18 21.1 22.8 83	
Table 2: Observation Date (HST*) Time (HST, hours) Venus diameter (") Obliquity (CCW, deg Phase angle (deg) Doppler speed (km s	n param J) S ⁻¹⁾	eters May 2007 25–31** 18–21 20.5 7.9 83 -13.6	Nov 2007 10–13 05–10 20.9 22.8 81 +12.7	Aug 2010 2–9 15–18 21.1 22.8 83 -14.0	
Table 2: Observation Date (HST*) Time (HST, hours) Venus diameter (") Obliquity (CCW, deg Phase angle (deg) Doppler speed (km s Typical Seeing (")	n param 	eters May 2007 25–31** 18–21 20.5 7.9 83 -13.6 1.0	Nov 2007 10–13 05–10 20.9 22.8 81 +12.7 1.0	Aug 2010 2–9 15–18 21.1 22.8 83 -14.0 1.8	























