



Mid-infrared imaging of Neptune's stratospheric emission from Gemini and spectroscopy from the Spitzer IRS

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Middle-infrared images of Neptune's stratospheric thermal emission in the summer of 2007 failed to detect regions of near-polar non-homogeneous emission evident in similar images taken previously (2005 and 2006). This indicates a time-variable phenomenon which is possibly associated with tropospheric disturbances associated with cloud variability deeper in the atmosphere near 70°S latitude. We also present more detailed information on Neptune's middle-infrared spectrum, as measured by the Spitzer IRS instrument in cycles 1 and 2. These measure in more detail the vertical variability of temperatures and molecular (mostly hydrocarbon) abundances in Neptune's stratosphere, as well as the extent of their longitudinal inhomogeneity and their long-term time variability. We examine, in particular, the case for detectable benzene in Neptune's stratosphere. The Spitzer IRS spectra will be compared with more recent spectra obtained in 2007 with the Akari spacecraft.