

Future Explorations of Titan, Enceladus, Iapetus and Phoebe

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As the Cassini-Huygens mission steps into the second year, planning for the extended mission has also started. High-profile targets will certainly include Titan with a thickish nitrogen atmosphere, Enceladus of active outgassing activity, Iapetus with an enigmatic equatorial bulge, and Phoebe in retrograde orbit. These four satellites represent four important states of planetary satellites in our solar system and perhaps in many extra-solar systems also. Each of them will deserve special attention and specific methods of investigations in future. These will most likely involve orbiters, rovers, and long-duration balloons and aeroplanes in the case of Titan. Several Asian nations are now engaged in space programs to the Moon and Mars. It would be appropriate for the corresponding agencies to include the scientific and technical infrastructure required to support deep space missions to the outer solar system into their master plan. Advanced propulsion and power systems would have to be designed and constructed within twenty years. All these should be performed according to the fundamental principle of peaceful use of space with a view to establish the platform for future regional and multi-agency cooperation.