New data about the seasonal variations of the north-south asymmetry of linear polarization degree of the light reflected by Jupiter are presented.

Such nonlinear atmospheric effect as appearance of second harmonic of the methane bands in the Jupiter spectrum was obtained. The spectral observations received by E. Karkoshka in 1993 and 1995 on the ESO from 300 to 1000 nm were used.

By several ways subsurface water can spring away. This investigation had been carried out to solve a simple problem of non-viscous liquid spreading on smooth surface of rotating planet.

The numbers of unknown satellites of Saturn, Neptune, Uranus (and exo-planets) are estimated by theoretical way. An unified formulae for distributions of the radii of the satellites, depended on the semimajor axis of the orbits, is set up.

A reflection law for Jupiter in form of linear combination of Lambert and Lommel-Seeliger is proposed. It is showed that proposed law quite well describes brightness distribution over Jovian disk at phase angle 2.7 degrees.

We present four-layer models of the internal structure of Europa that include a water layer and incorporate radiogenic heating. Ice and water thickness varies over a wide range, but tidal heating may further thin the ice shell to less than 10 km.