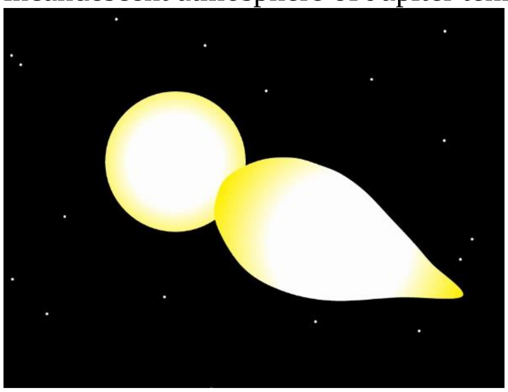
Abstract

Deuterium enhancements of 10^{10} observed in Large Dark Nebulae (LDN) and heavy elements detected by Galileo (C, O, S, Ar, Kr and Xe) suggest the giant planets in the solar system accreted slow and cold (20º K) from snowflakes and dust at their current orbits, forming frozen, highly deuterated Methane Gas Hydrate bodies (MGH), together comprising > 300 earth masses of water. These alone comprised the original solar system. Jupiter incorporates the heavy elements as dust grains, which are uniformly distributed throughout the solid planet resulting in Jupiter's high density, 1.33, as compared with pure MGH, 0.9 g/cm^3. A recent (6,000 years BP) high energy impact on Jupiter triggered a massive nuclear fusion explosion of the local deuterium, which ejected proto-Venus plus the Galilean moons. The impact also expanded the incandescent atmosphere of Jupiter tenfold, initiating a continuous fusion reaction in the impact



crater. A hot plasma plume from this reaction, named Juno in Roman myth, originally extended 2 x10^6 km from the impact site at 22 ºS Latitude, beyond Callisto, rotating rapidly with Jupiter. It slowly diminished over ~ 5000 years, sweeping over the Galilean moons every eight hours, resulting in the higher densities and temperatures of the inner Galilean moons. The longevity of the plume confirms the high deuterium content of our giant planets observed in a number of Large Dark Nebula such as 1689N (Roueff). The fusion on the surface, some 700 km below the cloud-tops, has diminished to the lowest temperature reaction known: $d + p \rightarrow {}^3He^+ + \gamma$, which alone is producing Jupiter's atmospheric temperature excess, enormous magnetic field, constant auroral ovals, and its multiple zonal wind bands, actually *vortices*, constrained below by the solid MGH surface. The reaction is generating 10^{30} relativistic $^3He^+$ ions per second, which rise in a hot vortex, due to the Coriolis effect. It is swept west below the clouds some 20,000-km due to the rapid rotation of Jupiter, exiting the atmosphere through the Great Red Spot along with the standard abundances of heavy elements which are continuously being released by the heat of the fusion reaction. Although at 22 º S Lat. this constant momentum exchange results in a hot surface equatorial wind superrotation sensed by the MWR, but interpreted as a pancake layer of ammonia in the interior of a 'gas giant'. A 'tornado' of helium ions exits through the Great Red Spot, impacts the $^3He^+$ ion plasma cloud that orbits Jupiter (prograde), imparting the angular momentum of the rapidly rotating Jupiter and adding ions to replace those being lost to space. The positively charged cloud external to Jupiter's generates powerful magnetosphere unencumbered by the solid planet. Jupiter's magnetic field is opposite the field of the Earth, with north magnetic field corresponding to north geographic pole due to the prograde circulation of positive ions in the cloud. The highly energetic helium ions (24,000 km/s) which pass through the plasma cloud at the O'Donaghue 'hot spot' are captured in the external magnetic field and deflected helically to the poles creating the constant auroral ovals. The ovals are constant because the fusion reaction is constant. The $^3He^+$ ions are stable and produce no recombination radiation but their spiraling is observed as partially polarized decimetric synchrotron radiation observed from Earth, currently believed to be due to electrons. $^3He^+$ ions have a theoretical hyperfine transition between ground states at 3.46 cm which cannot be detected by any instrument on Juno. However, due to their great numbers surrounding Jupiter, they could easily be detected by radio telescopes on Earth supporting the mission. The solid MGH body of Jupiter

cannot generate a magnetic field, but due to the known uniformly distributed abundance of iron in dust particles, 318 times that of the iron on Earth, it acts as a large weak permanent magnet induced by the external magnetic field, offset from the geometric axis. This has resulted in the unexpected features of the magnetic field near Jupiter's surface.

The JEDI energetic particle detector has failed to identify the relativistic $^{3}He^{+}$ ions with velocities as high as *24,000 km/sec* surrounding Jupiter because it is too small to measure their time-of-flight. On every pass, all channels of the MWR radiometer experiment are detecting *heat* from the same atmospheric vortex circulating on the solid MGH surface of the planet (Figure 8), but due to the current insistence on the 'gas giant' hypothesis the data is being interpreted as a layer of ammonia at the equator within the gas planet. The radiometers are passive receivers, not radar or spectrometers.

The Juno Radio Science (gravity) experiment is already indicating a large "stable" homogeneous mass distribution of Jupiter rather than the rocky-iron core imagined having formed rapidly and attracted all the hydrogen before it escaped the system. The complexities in the medium wavelength gravity results, currently thought to be due to deep flows, are indicative of the very large basin or flooded palimpsest produced by impact explosions, the latest of which surrounds the fusion reaction, also an east-west ice mountain range below the hot vortex at 22 º S Latitude to the east of the GRS, formed due to the raining out of water released by the heat of the fusion as it rises, expands and cools. A crucial event for Juno will occur on July 11, 2017, when Juno will pass over the GRS, being exposed to the 'tornado' of 10^{30}/sec relativistic $^{3}He^{+}$ ions. Unaware of the danger, the Juno team may try to look down into the spot with the radiometer, because in the 'gas giant' hypothesis it is thought to be a passive feature, but this would be disastrous. The radiation will penetrate the titanium instrumentation vault and cause the system to go into safe mode or worse.