

Nearby Micro-Galaxy of Probably Habitable, Dark Micro-Stars Potentially Containing Profitable Rocket Fuel Water and Ores

A micro-galaxy of nearby, probably habitable, dark micro-stars mostly within 10 years travel time from Earth was discovered during the last decade. Galileo might have labeled these objects in this way, if he could have seen them. Digitally algorithmic hyper-spectral images from the vantage of a virtual spacecraft out beyond Pluto startled us. The micro-galaxy looks like a distant galaxy. Focusing only on getting rocket fuel for space transport, the algorithmic images showed only the relatively accessible, probably habitable objects, those with more than 30 percent chance of water, low gravity and big enough to be worth it.

Water itself is a fuel mass for Mass-Energy rockets such as ion engines and nuclear or solar thermal rockets (energy separate from reaction mass), and a rocket fuel ore.

Some tens of percent of about 8,000 known NEOs should have overabundance of extractable, directly usable water. These NEOs would be "habitable," as mining camps.

Because of their rocket fuel, the dark micro-star formation can give us access to thousands of new worlds to occupy, staging for interstellar travel, and enough rocket fuel to generate trillion-dollar personal wealth. If exploited, people would neither need nor want any government to tell them who gets to go or stay. They will be able to pay their own trillion-dollar ticket for (micro-) galactic transport.

Statistics and calculations suggest the rocket fuel from each of 50-150 (TBD) NEOs closer than the moon (in mission ΔV) and larger than 1 km in size could be worth trillions net to Earth-Moon L2 or L5. We assumed we could sell the fuel for only \$50 per pound at L5.

From this subset of NEOs, steam rocket space tankers could bring back 100-200 times as much rocket fuel net to Earth orbit as the mass of the tanker sent to haul it. This massive rocket fuel gas station gives us access to 30 year trips to the Kuiper belt (~ 100,000 habitable objects) using a Jupiter Oberth maneuver.

The scheme to extract the water involves frying hydrated regolith or permafrost objects, releasing steam and condensing to water or ice. Nuclear- or solar-heated steam rockets would nudge giant bladders of water or ice to an orbit around Earth. The Department of Energy and Department of Defense explored this space tanker scheme which would use only heat for all processing steps, not electricity.

The reward is 100,000 new worlds to inhabit.