

One of the primary goals of the Rosetta mission was to constrain the origin and evolutionary history of 67P. Rosetta and OSIRIS have provided several hints forwards constraining the origin of 67P. This talk will in particular discuss the very bright spots observed on the surface in the Imhotep region by the OSIRIS camera system. These bright spots are most likely water ice based on OSIRIS and Virtis spectra. The ice in the spots survived for an extended time period (> 6 months) indicating a significant size of the particles (centimeter to decimeter size). Lab and modeling work shows that the ice particles must have high purity with a dust to ice ratio much lower than the cometary mean. The ice particles in Imhotep are located in the debris talus from a cliff collapse indicating that the particle originates from deeper down in the comet (meters). It can be argued that we observed fresh exhumation of such particles in the large cliff collapse that happened on the Aswan cliff during the Northern winter. The origin of these ice particles is not certain but most likely the particles are primordial. A primordial origin would hint towards heterogeneities in the protoplanetary disk from which 67P formed.

