EGU22-7975
https://doi.org/10.5194/egusphere-egu22-7975
EGU General Assembly 2022

Peculiar Comets Ejected Early In Solar System Formation

Sarah E. Anderson[1], Jean-Marc Petit[1], Benoît Noyelles[1], Olivier Mousis[2], and Philippe Rousselot[1]
[1]Institut UTINAM UMR 6213, CNRS, Univ. Bourgogne Franche-Comté, OSU THETA, BP 1615, 25010 Besançon Cedex, France (sarah.anderson@univ-fcomte.fr)
[2]Aix Marseille Université, CNRS, CNES, LAM, Marseille, France.

Comet C/2016 R2 PanSTARRS presents an unusually high N_2/CO abundance ratio, as well as a heavy depletion in H_2O, making it the only known comet to have this composition. Two studies have independently estimated the possible origin of this comet from building blocks formed in a peculiar region in the protoplanetary disk, near the ice line of CO and N_2. Here we explore the potential fates of comets formed from these building blocks using a numerical simulation of early solar system formation and tracking the dynamics of these objects in the Jumping Neptune scenario. We find that objects formed in the region of the CO- and N_2- icelines a are highly likely to be sent towards the Oort Cloud or ejected from the Solar System altogether on a relatively short timescale, thus offering a potential explanation for the scarcity of comets with R2's unique composition.