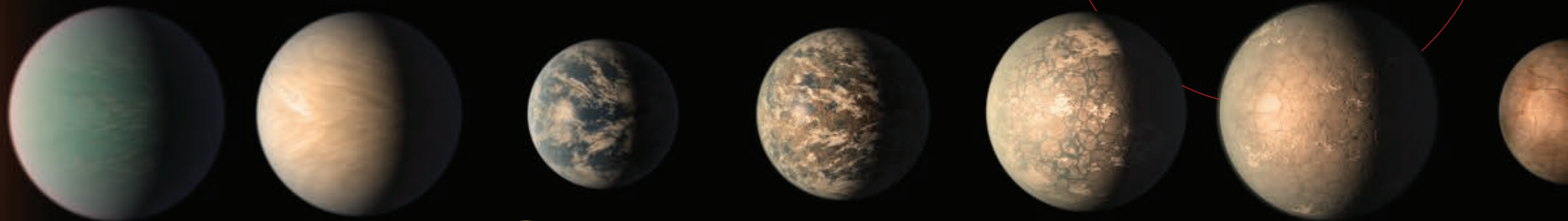


# Exploring the Rocky

# Worlds of TRAPPIST-1



In


February 2017, the Spitzer Space Telescope—funded by NASA and managed by the Jet Propulsion Laboratory—revealed the first known system of seven Earth-size planets around a single star, with three firmly located in the habitable zone, the

area around the parent star where a rocky planet is most likely to have liquid water. In February 2018, further research—which revealed that the planets in this exoplanetary system, known as TRAPPIST-1, are all mostly made of rock—offered the best estimates to date for the planets' densities, noting

that some could hold up to 5 percent water; 250 times more than in the earth's oceans.

The form that water would take on TRAPPIST-1 planets would depend on the amount of heat they receive from their star, which is a mere 9 percent as massive as our sun. Planets closest to the star are more likely to host water in the form of atmospheric vapor,

while the water on those farther away may be frozen on their surfaces as ice.

“We now know more about TRAPPIST-1 than any other planetary system apart from our own,” said Sean Carey, manager of the Spitzer Science Center at Caltech/IPAC, and co-author of the new study. “The improved densities in our study dramatically refine our understanding of the nature of these mysterious worlds.” 

This artist's concept shows what the TRAPPIST-1 planetary system may look like, based on available data about the planets' diameters, masses, and distances from the host star, as of February 2018.

For more about TRAPPIST-1 and a video, visit [magazine.caltech.edu/post/trappist](https://magazine.caltech.edu/post/trappist)