

# MAVEN surveys the ionosphere of Mars

- The ionosphere of Mars plays a critical role in the loss of atmospheric gases and water to space. NASA's Mars Atmosphere and Volatile Evolution (MAVEN) has provided the first measurements of the composition of the ionosphere of Mars since the Viking orbiter in 1976. Unlike Viking, which provided measurements at only one time of day, MAVEN has generated the first map of the full day/night structure of the ionosphere.
- The images to the right show how the densities of the two main ions,  $O_2^+$  and  $O^+$ , depend on altitude and time of day. The global structure of the ionosphere, which is illustrated by these images, affects how much water escapes from Mars. In these images, the view is from the North Pole looking down.
- These observations follow Oxygen as it escapes into space primarily on the dayside and are used to determine how much water was present on ancient Mars when life could have existed.

