

## Investigating the Martian Atmosphere

Transcript:

[ droning sound ] [ music ] Unlike robotic rovers, which land on the Martian surface, the Mars Atmosphere and Volatile EvolutioN mission, MAVEN, will go to work in orbit. But there are other things that separate this remarkable mission from recent trips to the Red Planet. Instead of taking photographic images, or measuring the terrain, MAVEN will study the Martian atmosphere, using an array of sophisticated instruments. Scientists believe that Mars was once home to a thicker atmosphere, and bodies of flowing water, but they wonder, where did all that atmosphere and water go? The answer may lie in the Sun, or more precisely, how the solar wind interacted with the early Martian environment. By carefully observing Mars' atmosphere today, scientists will better understand what it was like in the ancient past, helping them to plan future missions. Pursuit of answers requires serious muscle. MAVEN carries eight scientific instruments, each designed to examine specific aspects of the Martian environment, from atmospheric composition, to the planet's magnetic field, to the characteristics of the Mars upper atmosphere. The spacecraft's orbit will be unusually elliptical too, affording opportunities to make measurements close to the planet, as well as more than 3,800 miles above the surface. Scientists using MAVEN to study the present-day Martian atmosphere hope to reveal what the planet was like long ago. Did the early atmosphere support liquid water, and where did it go? Were conditions once favorable for life? Did changes in the atmosphere help to turn Mars into the frozen desert we see today? These questions and more have beguiled Mars-watchers for decades. With MAVEN, NASA intends to fill in some of the planet's elusive early chapters. [ ambient space sound ] [ satellite beeping ]