

Space Exploration and Human Imagination Conference, Rice Space Institute

A Dynamic Earth: 50 Years of Observations from Space
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Observations of the surface of the Earth began more than a half century ago with the earliest space missions. The global geopolitical environment at the beginning of the space age fueled advances in rocketry and human exploration, but also advances in remote sensing. At the same time that space-based Earth Observations were developing, global investments in infrastructure that were initiated after World War II accelerated large projects such as the construction of highways, the expansion of cities and suburbs, the damming of rivers, and the growth of big agriculture. These developments have transformed the Earth's surface at unprecedented rates.

Today, we have a remarkable library of 50 years of observations of the Earth taken by satellite-based sensors and astronauts, and these images and observations provide insight into the workings of the Earth as a system. In addition, these observations record the footprints of human activities around the world, and illustrate how our activities contribute to the changing face of the Earth. Starting with the iconic "Blue Marble" image of the whole Earth taken by Apollo astronauts, we will review a timeline of observations of our planet as viewed from space.