



National Aeronautics and  
Space Administration

*Understanding Our Changing Planet*  
**NASA's Mission to Planet Earth**





We understand some facets of our environment fairly well—short-term weather forecasts, basic hurricane tracking, and detecting changes on the Earth's surface. But we are missing a lot of other critical information, like the kind of data we need to predict how the climate will shift a year from now, and what the effects will be on people whose livelihoods depend on that climate—such as farmers, water managers, fishermen, urban planners, etc.

NASA has developed a program—**Mission to Planet Earth**—that captures our spirit of exploration and focuses it back on the Earth. NASA and its interagency and international partners are striving to discover patterns in climate that will allow us to predict and respond to environmental events—such as floods and severe winters—well in advance of their occurrence. Nations, regions, and individuals can then use this knowledge to prepare for these events, likely saving countless lives and resources.

### **A New Approach: Studying the Earth's Interconnections**

Our program addresses a fundamental scientific challenge: how do the Earth's land, water, air, and life interact to produce the environment in which we live? Scientists believe that understanding how each of these parts of the Earth is linked to one another is the key that will help provide the "user's guide" for our planet. Working with researchers in universities, industry, and other state and Federal agencies through the U.S. Global Change Research Program, we are addressing some of the most important questions regarding the global environment.

### **NASA's Unique Contribution: The View From Above**

NASA has answered the call to provide a unique service: cutting-edge observations from space. The perspective from space is critical. Only from above can we observe and monitor places where it is impossible (or very difficult) to make close observations—such as distant parts of the world's oceans, deserts, and polar regions. Using this "big picture," scientists can then build computer models that simulate how the Earth behaves. More importantly, they can use this global understanding to focus on what people care about most: what is happening in their state or region.

### **A Wide Range of Benefits Flow From Good Science**

Both practical benefits and long-term understanding of the environment flow from the same high-quality science that forms the foundation for Mission to Planet Earth. Using data from satellites, aircraft, balloons, and ground research, scientists and other users around the world will use this information to:

- Dramatically improve weather forecasts, thus improving agricultural and natural resources productivity;
- Understand the causes and patterns of natural disasters (floods, hurricanes, etc.) and how to respond to them;
- Improve efficiency in the use of agricultural chemicals, reducing pollution and increasing crop productivity;
- Provide the facts needed to make objective decisions about the environment; and
- Support the development of a new high-tech, commercial remote-sensing industry in the United States that could contribute significantly to our economy and trade balance.

### **We've Already Made Excellent Progress— With Much More to Come**

NASA research and observations are already helping, such as the following:

- Chesapeake Bay coastal marshes, which support the seafood industry and protect water fowl and shorelines;
- California's wine industry, to protect from insect infestation and improve crop monitoring capability, health, and yield;
- Cost-effective studies of crop yields and irrigation patterns in Kansas, providing the means for sustainable agriculture;
- Regional planners, in performing fire hazard assessments, pollution runoff analyses, and electric power demand predictions;
- Firefighters, in identifying and tracking dangerous brush fires in western states;
- The Earth's ozone layer, which protects living things from harmful ultraviolet radiation; and
- Forecasters, in improving predictions of timing extreme "El Niño" climate events and what effect they will have on U.S. and global weather.

### **Getting Information to People Is the Key**

You can get more information about Mission to Planet Earth from our World Wide Web Home Page at: <http://www.hq.nasa.gov/office/mtpe/> or by sending written inquiries about Mission to Planet Earth to:

**Public Inquiries  
Code P  
NASA Headquarters  
Washington, DC 20546-0001**

*Image of Western Hemisphere as taken by GOES 8 meteorological satellite in September 1994. The color composition is a combination of natural color (red, green: visible light) and infrared (blue: nonvisible.)*