

Space Technology and Earth System Science

Shahid Habib
NASA
Goddard Space Flight Center
Greenbelt, Maryland, USA

One of the biggest challenges we will continue to face this century is the changing climatology of our home Planet. This change is attributed to both natural and anthropogenic factors. The Planet, since her inception some 4 billion years ago, has been going through a constant oscillatory transformation from ice age to global warming and back. This process is cyclic and takes centuries to evolve and transpire. However, with the advent of industrial age, this process of warming is accelerating due to human assault on her vital resources. This has caused a serious trepidation among the policy makers of the world community in terms of Planet's sustainable resources. Hence, it has become an important subject of debate in the national and international legislative bodies. With rising sea levels and relative increases in natural disasters, it has become necessary that we rise to the challenge of aggressively searching for answers. As policy makers, scientists, engineers, first responders and technologists, it is incumbent upon us that we answer a call to service by joining forces to cut through this Gordian knot. In order to deal with this conundrum, the space sciences, technologies and high performance computing have provided the scientific community of the world a unique vantage point to study these phenomena's, and their interdisciplinary relationships of multiple processes and feedback loops within the Earth's climate system.