# Veerabhadran Ramanathan

**Distinguished Professor of Atmospheric Sciences at UC San Diego**

La Jolla, CA, US

Veerabhadran Ramathan discovered the greenhouse effect of CFCs

## Biography

Ramanathan discovered the greenhouse effect of CFCs (chlorofluorocarbons; belongs to family of halocarbons) in 1975 and showed that a ton each of CFC-11 and CFC-12 has more global warming effect than 10,000 tons of CO2. This discovery established the now-accepted fact that non-CO2 gases are a major contributor to planet warming and also enabled the Montreal Protocol to become the first successful climate mitigation policy. For this work, he was awarded the Tyler Prize by Nobel Laureate Sherwood Rowland in 2009. In 1980, Ramanathan and colleague Roland Madden were the first to make a statistical prediction that global warming will be detected above the background noise by 2000, a prediction which was verified by the Intergovernmental Panel on Climate Change in 2001. Ramanathan led international field campaigns and developed unmanned aircraft platforms for tracking brown cloud pollution worldwide. His work has led to numerous policies to curb this major contributor to the atmosphere?s greenhouse warming such as the formation of the Climate and Clean Air Coalition by the United Nations. Ramanathan founded, designed, and leads Project Surya along with daughters Nithya Ramanathan and Tara Ramanathan. Project Surya is an extended effort to characterize and mitigate the climate and health impacts of cooking with solid biomass as a way to slow the pace of climate change protect the three billion from climate change. He is now leading development of a University of California climate solutions course that is expected to reach a million students or more in California and beyond. Ramanathan was honored as the science advisor to Pope Francis? holy see delegation to the historic 2015 Paris climate summit and in addition advises California Governor Jerry Brown. He was named a UN Climate Champion in 2013; has been elected to the US National Academy and the Royal Swedish Academy which awards the Nobel prizes. Foreign Policy named him a thought leader in 2014; In 2018, he (with James Hansen) was named the Tang Laureate for sustainability science.

## Areas of Expertise

Atmospheric Brown Clouds (ABC), Air-sea interactions, Climate Change Mitigation, Lightweight Unmanned Aircraft Vehicles as Research Platforms, Earth radiation budget measurements, Clouds, aerosols, greenhouse gases, and climate

## Affiliations

NASA Earth Observatory, Science Editorial Board, Central Equatorial Pacific Experiment (CEPEX), Chief Scientist, Atmospheric Brown Cloud Project (ABC), Chair

## Education

**State University of New York at Stony Brook**
Ph.D. Planetary Atmospheres

**Indian Institute of Science**
M.Sc. Engineering Science

**Annamalai University**
B.E. Engineering

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## Accomplishments

**Pontifical Academy of Sciences, Council Member**
2012

**TERI University, UNESCO Professor of Climate and Policy,**
2012

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