

Topics (T)  
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## THE ROLE OF SPACE TECHNOLOGY IN CLIMATE ADAPTATION AND MITIGATION

### Abstract

Climate change is one of the greatest threats facing humanity today, and the resulting increase in extreme weather has a large economic and social impact across the world. My proposed session would cover how data collected by satellites is used by both the government and a range of industries to monitor, adapt to and mitigate the impacts of climate change on our biosphere. I will also cover innovations in satellite technology that are enabling new use cases for mitigating climate change.

The following is an example of insights and use cases I will cover during the session:

Weather and Earth intelligence variables that can only be collected from space, including radio occultation and reflectometry data, arm organizations with the information needed to improve short-to-medium range weather forecasts and better understand and prepare for the long-term impacts of climate change. New technologies in development, including microwave sounding and polarimetric radio occultation technology, will further enhance the accuracy of global weather forecasts. These types of satellite weather data can help sectors like agriculture and renewable energy generators experience increased efficiency, reduced operational costs, and less disruption to the regular course of business. For example, better weather forecasts can help agriculturists boost crop yields and make important cost-saving decisions, such as protecting crops from frost when temperatures are expected to drop.

Satellite data can also help mitigate climate change by providing organizations insights into how they can reduce their carbon footprint. AIS ship-tracking data and maritime weather data help the shipping industry optimize vessel routes and fuel efficiency, ultimately reducing their environmental impact. For example, shipping giant Oldendorff was able to improve its fuel consumption simulation model and calculate paths that consumed the least amount of fuel with Spire Weather data, which helped reduce fuel costs and minimize its carbon footprint. With institutions like the International Maritime Organization (IMO) adopting new measures requiring ships to report their energy efficiencies and carbon intensity, this type of data will be increasingly important in the coming years as shipping companies look to improve poor ratings that could impact their business and financial standings.

The audience for this session will take away an understanding of what we can learn about Earth's biosphere through satellite technology, how organizations are using satellite data to adapt to and mitigate climate change, and the use cases that will be unlocked in the years ahead with developing space technology.