North America GLOBE Phenology Campaign:
Dr. Erika Podest Q&A Transcript

Dr. Erika Podest: My name is Erika Podest and I'm a scientist at NASA's Jet Propulsion Laboratory, which is located in Pasadena, CA. I use satellite images to study the impact of climate change on terrestrial ecosystems.

GLOBE U.S.: What kind of research do you do?

Dr. Erika Podest: One of the things that I study is the vegetation growing season length in the northern high latitudes. So vegetation that is in Alaska, Canada, Eurasia. And I use satellite data to determine when that growing season begins and when it ends. And through many years of data, I can better understand then how that growing season is changing because of a warmer planet. And what are the implications then in terms of carbon uptake by the vegetation.

GLOBE U.S.: When did you know you wanted to be a scientist?

Dr. Erika Podest: I knew I wanted to be a scientist since I was a child. My parents were very outdoors and every weekend we were out swimming, hiking, camping. And from a young age, I developed a deep curiosity and love of nature, and I knew that I wanted to pursue a career that would allow me to study our environment.

GLOBE U.S.: What is a research question you've tried to answer?

Dr. Erika Podest: One of the things that I'm trying to answer through my research is to understand how increasing temperatures are affecting vegetation growing season length and what are the implications of that, especially in terms of carbon uptake by the vegetation. So in theory, a longer growing season would mean that there is more uptake of CO2 by the vegetation. However, there are stressors in the system such as less water availability. So one of the things that we're seeing are thinning snowpacks, and that means that by the end of summer the soils are pretty dry because the snowpacks are thinner. And so that means that the vegetation and in many cases becomes water stressed and it stops growing. Another stressor are extreme heat events and we're seeing these occurring more often now in the northern high latitudes where vegetation is cold weather adapted. So when it gets hits with these multiple days of extreme heat, then the vegetation becomes heat stressed and it stops growing. So ultimately what I am trying to better understand is the contribution of vegetation in the northern high latitudes toward the uptake of CO2, especially under these multiple stressors.

GLOBE U.S.: Why is studying phonology important?

Dr. Erika Podest: Vegetation phonology is the cycle of vital activities related to vegetation and it's highly sensitive to climate change. So in the northern high latitudes that vegetation

growing period, and in the case of deciduous vegetation, that period of time when the leaves are on and then the leaves are off. During that period there is a very large uptake of CO2 from the atmosphere by the vegetation. And this is a very important cycle because that uptake of CO2 is so large, because there's so much vegetation in the northern high latitudes, that it draws down global atmospheric concentrations of CO2.

GLOBE U.S.: What equipment or technology do you use in your research?

Dr. Erika Podest: The basis of my research is done using satellite data, specifically data from what are called radar sensors, and these are analogous to ultrasounds. And what's amazing about this sort of technology is that we can observe the surface of the Earth regardless of almost any type of weather condition or clouds or also if it's day or night. And this is especially useful in the northern high latitudes where it's dark for a large part of the year or also because there is so much cloud cover in these areas. Or they could also be smoke because of wildfires. It's a great way to study this part of the planet.

GLOBE U.S.: What is your favorite fall activity?

Dr. Erika Podest: Wow, that's a great question. I grew up in Panama where there are two seasons only, the wet season and the dry season. So honestly, I learned about seasons in school and I didn't really get to live through seasons until I came to the United States as an adult. And I have to say that every season has something very unique. But what I especially enjoy about the fall are the amazing vibrant colors. That is something just so unique.