Dr. Igor Semiletov joined the International Arctic Research Center ten years ago, in 2001, and has since established himself as a leading researcher on the subject of Chemical Oceanography in the Arctic Siberian Seas. Along with his research partner and wife, Natalia Shakhova, Semiletov has published extensively on the phenomena of Arctic offshore waters and greenhouse gases, much of this study resulting from his ongoing series of research expeditions throughout the Pacific-Siberian sector of the Arctic Ocean.

What has been most significant about your recent work?

Clearly, our findings over the last five years that have had the greatest impact on scientific conversations have had to do with methane release in the Arctic—especially around the East Siberian Arctic Shelf, off the northern coast of Siberia. The reason these observations have received so much attention is that methane is a very potent greenhouse gas—roughly 25 times more potent than carbon dioxide. Also, the methane release that we have identified in the Arctic is both unprecedented in terms of its volume and has the potential to increase greatly if warming trends continue.

The Arctic land and coastal seabed is unique because much of it is permafrost, which means that it can thaw if properly warmed, releasing the gases that until now have been trapped inside. These gases include carbon dioxide and methane, among others. And when methane gas emissions bubble up from the sea, rather than the more common diffusion (gradual release through soil), the emissions are more potent, since there is not enough time for microbes to convert the gas into carbon dioxide.

What led you to your interest in the field of Oceanography?

Growing up in northern, rural Russia, I was eager to read and learn as much about the rest of the world as I could; authors like Jack London and Ernest Hemingway prompted my strong desire to travel broadly as well. And after discovering the great work of the marine geologist Roger Revelle at the local library, I decided that studying Oceanography would be the most exciting way for me to accomplish what I wanted. From this point, I was able to take advantage of many opportunities for study and travel, including work on the Soviet Union’s fleet of research ships, which took me to each of the world’s oceans—except for the Arctic Ocean, which I didn’t visit for the first time until 1994.

Russia has a great history of Oceanographers, but the Perestroika period during which I began my professional research in the Arctic saw limited resources and funding for the Arctic science. Though I worked with Sergey Zimov to establish the Chersky Research Station, which is now one of the finest research stations in Russia, if not the world, it was not until I established connections with Western funding sources and institutions that I was able to pursue more ambitious ends. And now, by leading international collaboration in the Pacific-Siberian sector of the Arctic Ocean, we are working to revitalize science in Russia, while also giving researchers from the United States and the rest of the world further collaboration opportunities.

Is science the most important thing to you? What other interests do you have?

Even more important to me than science is my wife Natalia. She has always been my inspiration.

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