

[Dr. Christopher Shuman](#)

Phone interview conducted on June 9th, 2017

Questions

1) What will you take away from this event and/or what specifically will you be watching for after Larsen C breaks off?

We are of course going to have to think about this in the long-term. There have been a number of studies (one I just sent you) that kind of illustrate how challenging the problem is of trying to understand how a large system like this responds to regional and global climate trends. It's going to take a lot of observations . . . where ice meets ocean is one of the numerical challenges of our age. Because in essence, observing an event like this isn't really the goal. That's a helpful illustration of the kinds of changes happening in the cryosphere, but it doesn't necessarily give us that much insight into how things are going to behave in the future. We need observations tied into the best models we can make. Even though weather forecasts aren't perfect, we still do check the weather before we go to the beach. People read economic studies even though they too aren't perfect.

The good news is - if you've looked at the mosaics/online maps of Antarctica - you'll probably notice the glaciers that feed the Larsen C aren't particularly big. So the mass contribution, should the Larsen C fully collapse, is not going to be that major in terms of the global ocean. It won't be trivial, but it's not quite the same level of concern as the Amundsen Sea with the Pine Island Glacier that could contribute a great deal more ice mass into the global ocean. So that's kind of the "good news," if there is good news. Because the likely scenario is that...with the loss of the large berg, you're going to expose that much more of the ocean surface to solar radiation during the Austral Summer - even if sea ice fills the gap left by the calving event, you're still much more likely to be adding heat to the local area, the regional area, after the berg is gone. And continuing the overall atmospheric and oceanic-driven thinning that's been documented in the studies I sent via email.

2) Is there any other info we should be sure to include in our write-up of this event?

The USGS publication - 2600 B mapping - I pointed you there in part to give a nod to some of the unsung heroes who are now retired who really - back before climate change was political football - were just doing the kinds of basic analysis of images and maps and ship reports that enables us to fairly confidently say things like "this is the furthest retreat inland of the Larsen C that humans have observed." It's not necessarily exciting science, but it's fundamental to knowing where we're going, how'd we get here. . . Certainly before this significant warming period there were changes, but not of this magnitude.

3) Any thoughts on Bawden Ice Rise?

The little bit of pinning point. It's essentially a small island that the ice has more or less overrun as it is pushed out from the Antarctic Peninsula coast and it provides a balance point for the upper part of Larsen C. [Islands] are kind of critical for ice shelf stability because they are obviously much more resistant to waves and storm forces. Tidal forces probably have the ice flexing around that bedrock knob. But they are a critical part of the overall ice shelf's long-term health. Even back to '63, the ice has more or less been pinned to the Bawden. So if Larsen C loses contact with the Bawden, that will be a pretty distinct change in the overall stability.