

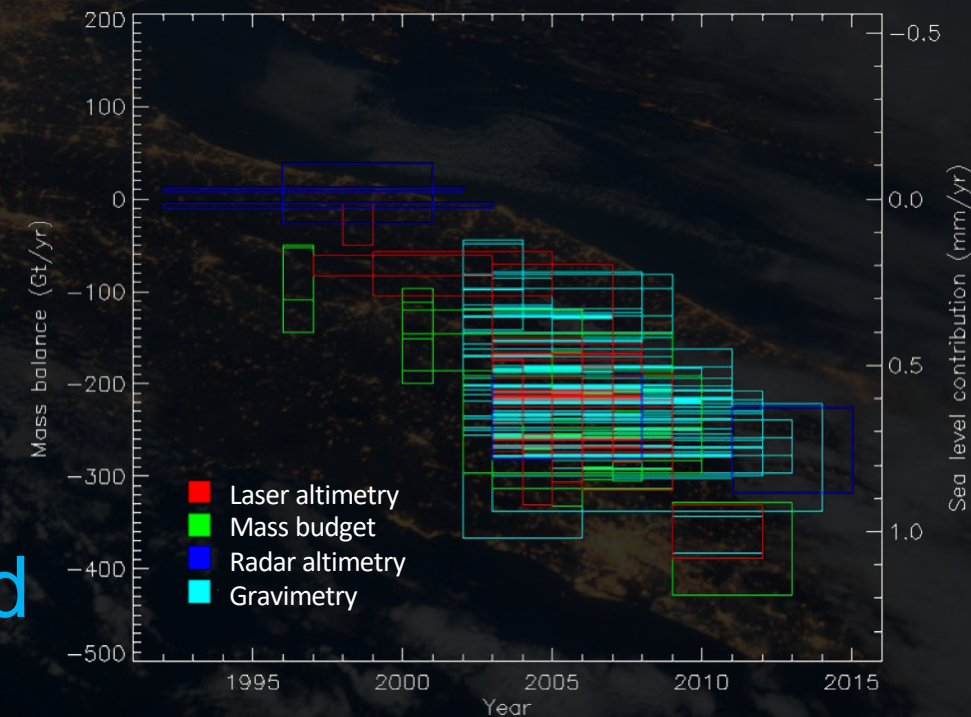


The Ice Sheet Mass Balance Inter-comparison Exercise

Andrew Shepherd, Erik Ivins, Eric Rignot, Ben Smith, Michiel van den Broeke, Isabella Velicogna, Pippa Whitehouse, Kate Briggs, Ian Joughin, Gerhard Krinner, Sophie Nowicki, Tony Payne, Ted Scambos, Nicole Schlegel, Geruo A, Cécile Agosta, Andreas Ahlstrøm, Greg Babonis, Valentina R. Barletta, Anders A. Bjørk, Alejandro Blazquez, Jennifer Bonin, William Colgan, Beata Csatho, Richard Cullather, Marcus E. Engdahl, Denis Felikson, Xavier Fettweis, Rene Forsberg, Anna E. Hogg, Hubert Gallee, Alex Gardner, Lin Gilbert, Noel Gourmelen, Andreas Groh, Brian Gunter, Edward Hanna, Christopher Harig, Veit Helm, Alexander Horvath, Martin Horwath, Shfaqat Khan, Kristian K. Kjeldsen, Hannes Konrad, Peter L. Langen, Benoît Lecavalier, Bryant Loomis, Scott Luthcke, Malcolm McMillan, Daniele Melini, Sebastian Mernild, Yara Mohajerani, Philip Moore, Ruth Mottram, Jeremie Mouginot, Gorka Moyano, Alan Muir, Thomas Nagler, Grace Nield, Johan Nilsson, Brice Noël, Inès Otosaka, Mark E. Pattle, W. Richard Peltier, Nadège Pie, Roelof Rietbroek, Helmut Rott, Louise Sandberg Sørensen, Ingo Sasgen, Himanshu Save, Bernd Scheuchl, Ernst Schrama, Ludwig Schröder, Ki-Weon Seo, Sebastian B. Simonsen, Thomas Slater, Giorgio Spada, Tyler Sutterley, Matthieu Talpe, Lev Tarasov, Willem Jan van de Berg, Wouter van der Wal, Melchior van Wessem, Bramha Dutt Vishwakarma, David Wiese, David Wilton, Thomas Wagner, Bert Wouters & Jan Wuite

Objectives

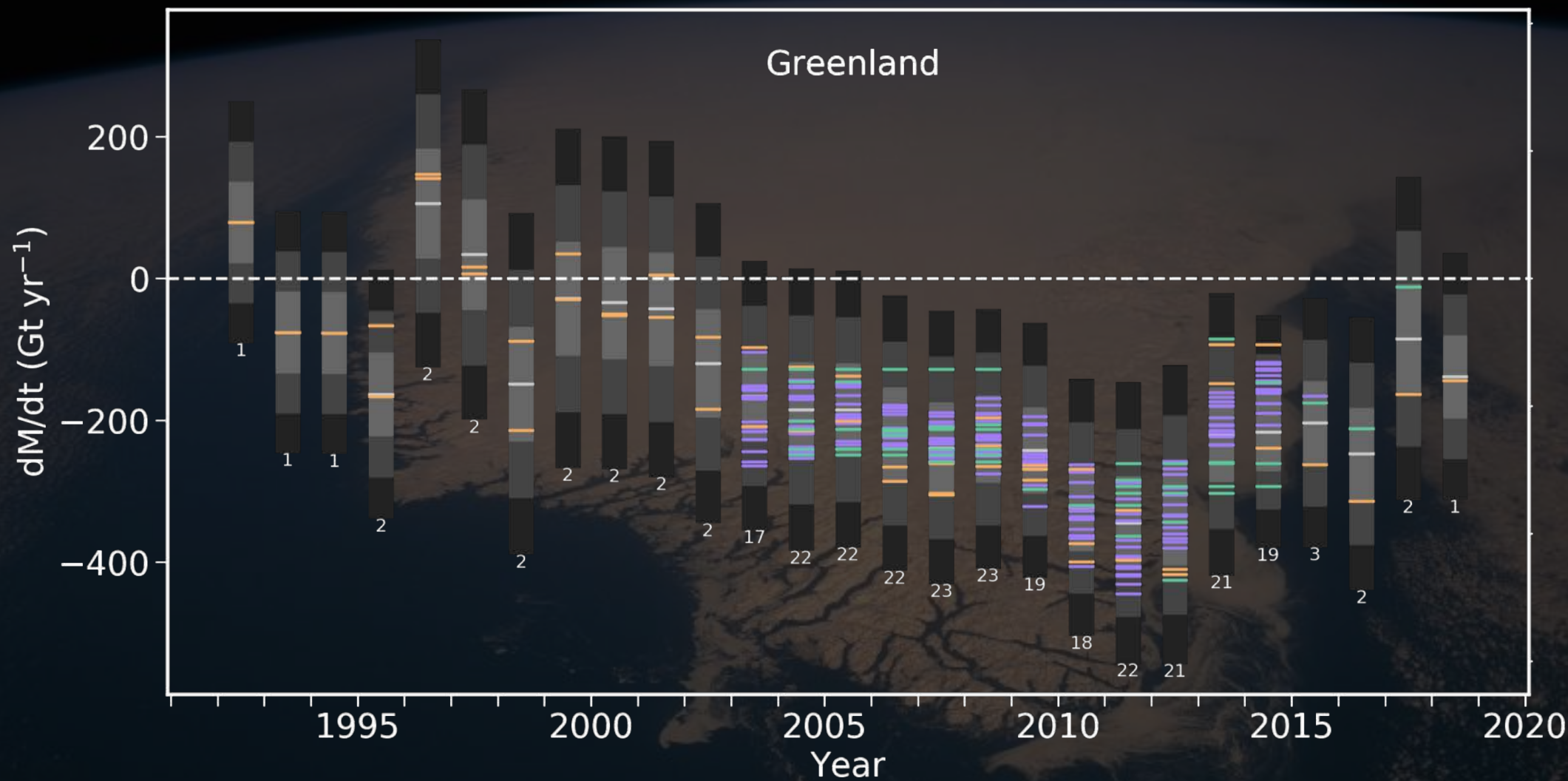
- ❄ Ice sheets are a major contributor to global sea level rise
- ❄ Future contribution is least certain component of sea level projections
- ❄ > 150 individual estimates of ice sheet loss
- ❄ Based on 3 satellite techniques
- ❄ **imbie** is community assessment
- ❄ Coordinated by ESA and NASA
- ❄ Involves CCI **Antarctica & Greenland**
- ❄ >100 participants



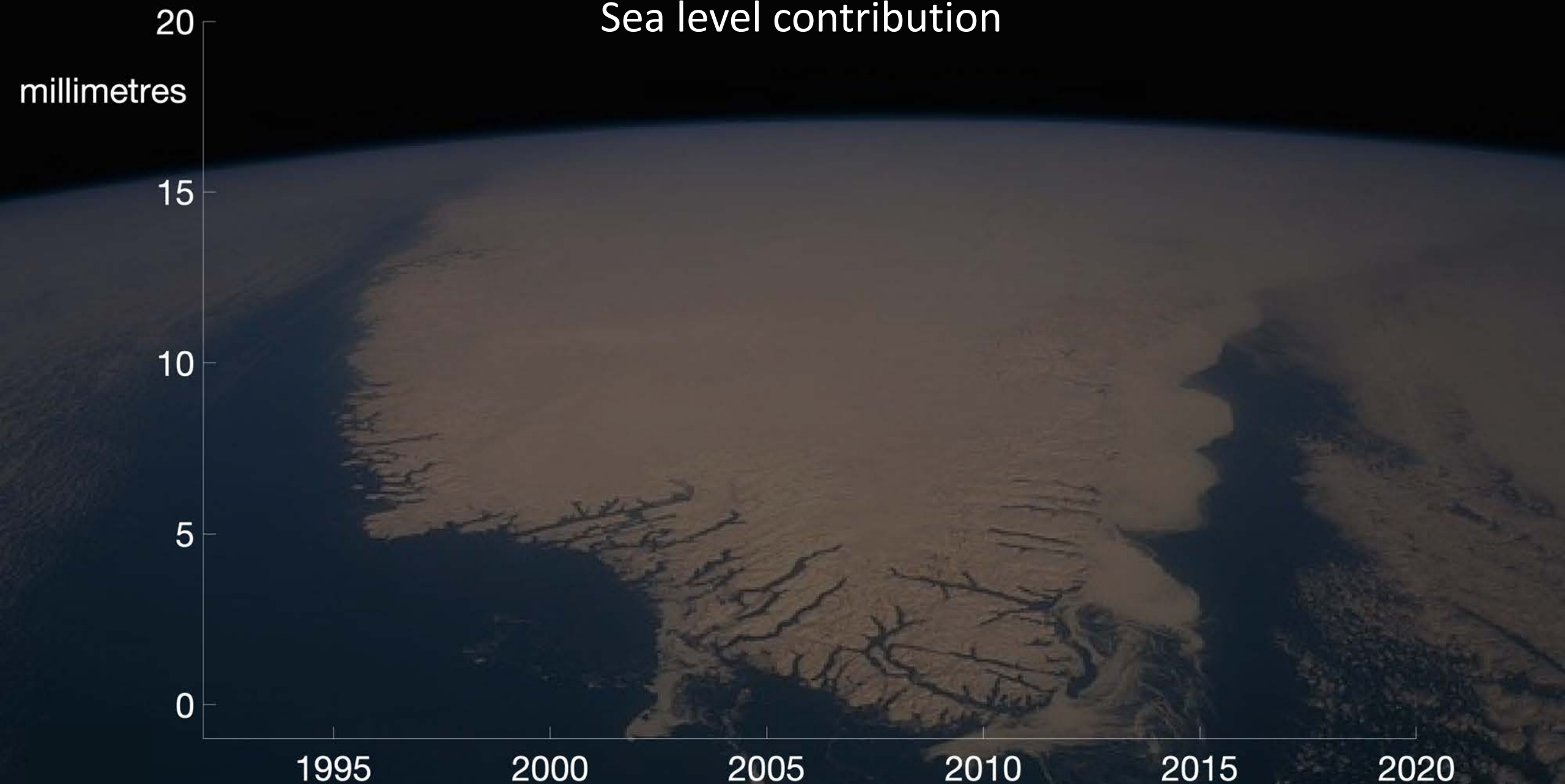




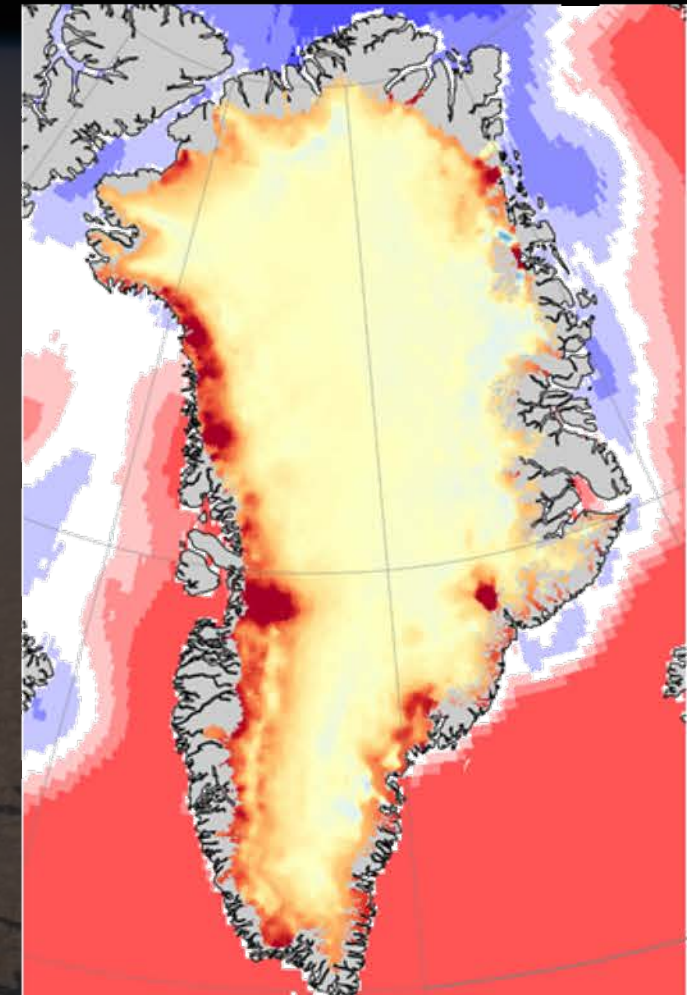
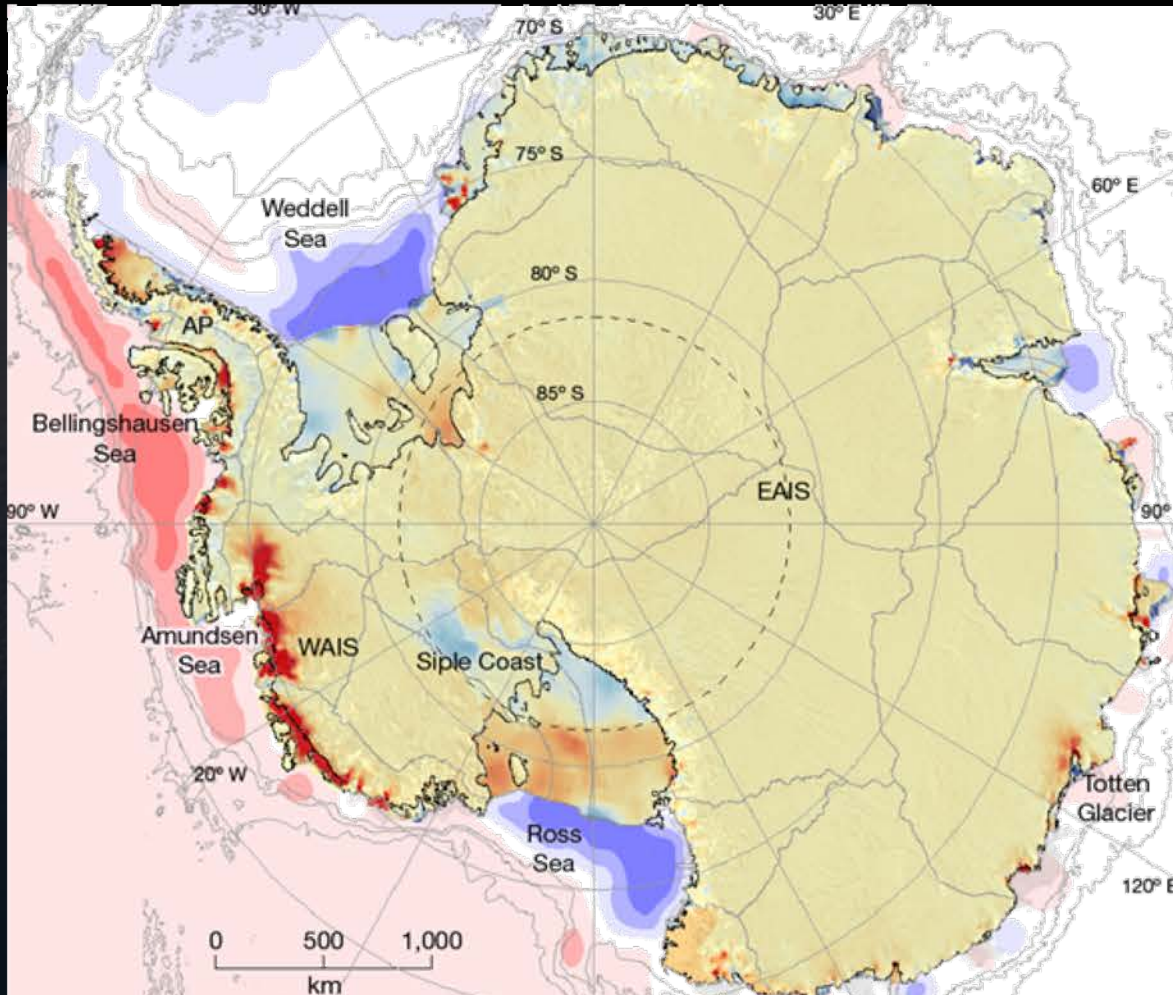
— Altimetry
 — Gravimetry
 — Input-Output Method
 ▬ All



Sea level contribution



Ocean temperature (°C)



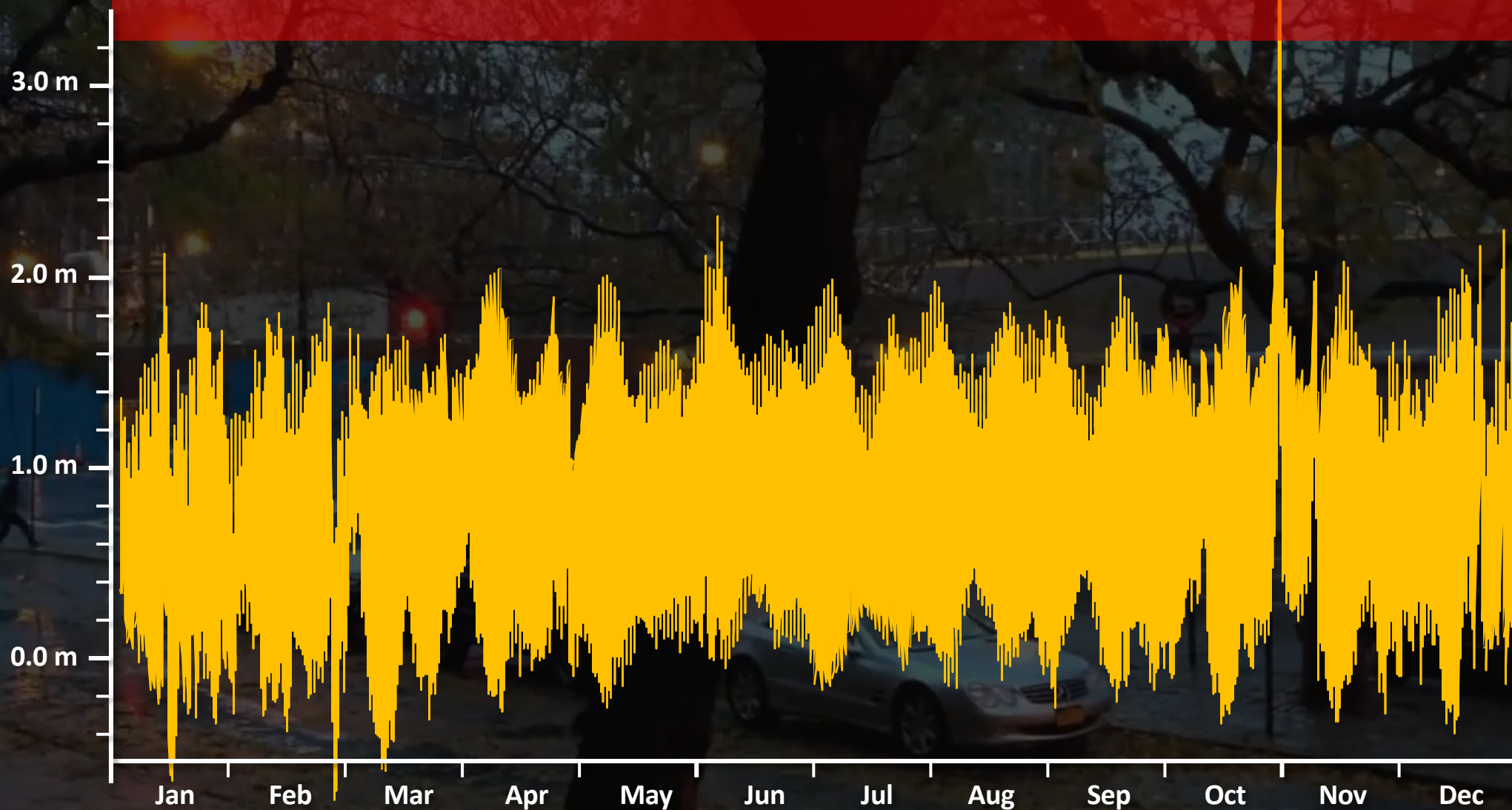
Elevation change (m/yr)



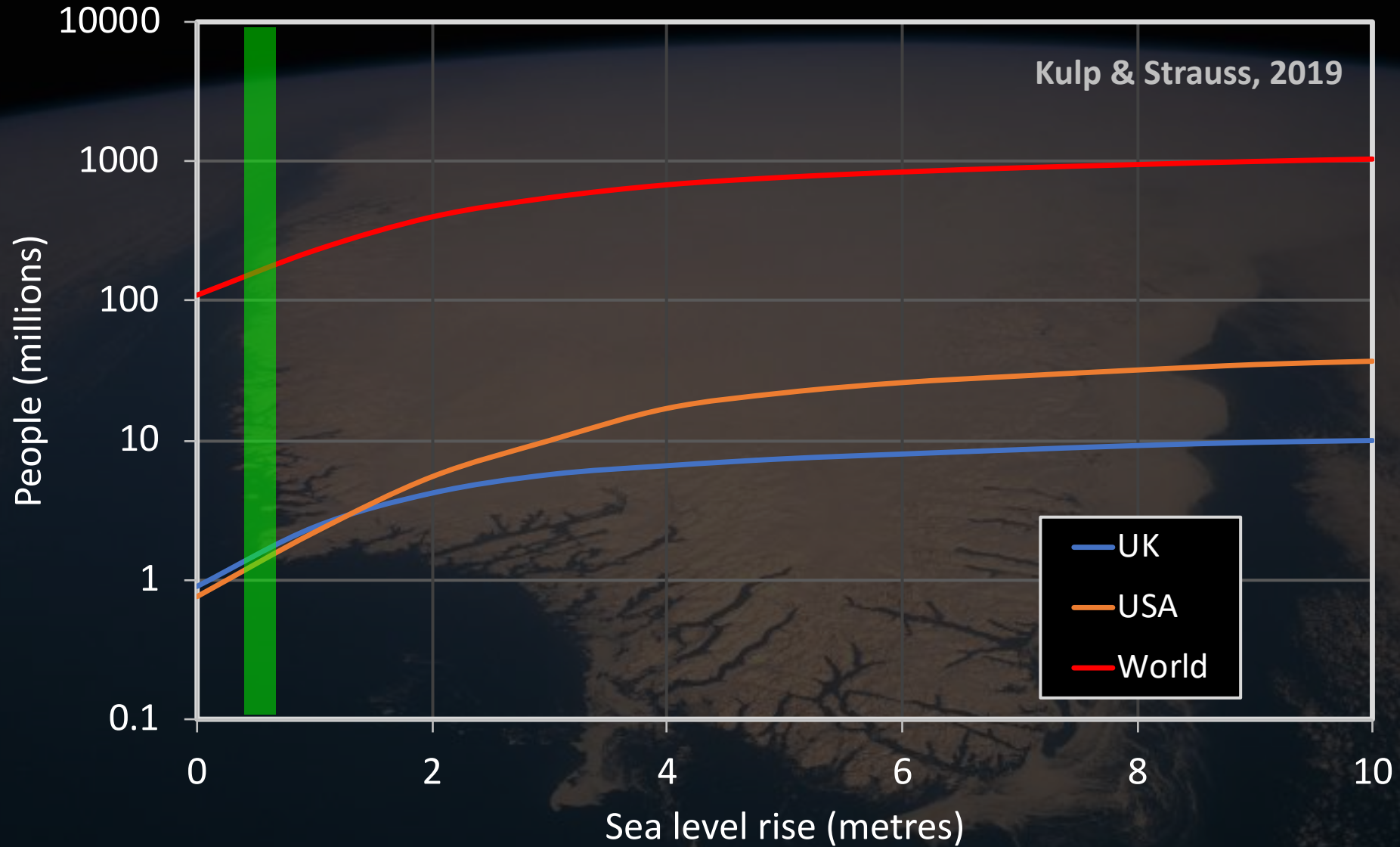


New York Water Level

← 22 Oct 2012



Population below mean high tide



Summary

- ❄ **imbie-2** has 92 partners, 26 EO, 11 GIA, 10 SMB
- ❄ Antarctica & Greenland have lost 7 trillion tons of ice
- ❄ Due to ocean and atmospheric warming
- ❄ Has caused 18 mm of global sea level rise
- ❄ Six-fold increase in rate of ice loss
- ❄ Tracking IPCCs worst-case scenario, +17 cm by 2100
- ❄ Raises annual flood risk to 400 million people
- ❄ **imbie-3** begins soon
- ❄ Objectives are to separate snow & ice, use new missions, and to produce annual assessments

