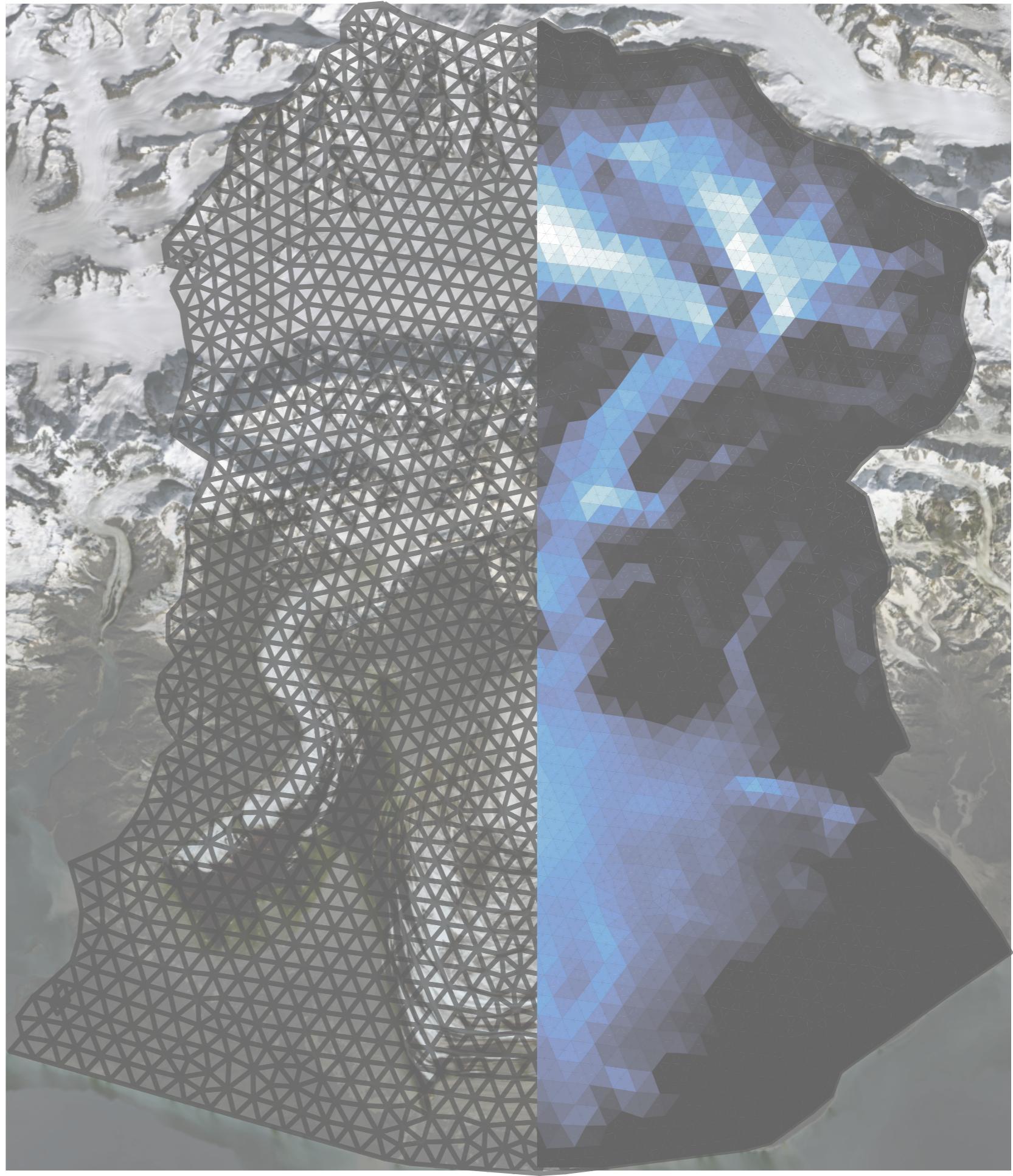


Understanding melting glaciers with computers

*the known, the unknown,
and the problem with data*

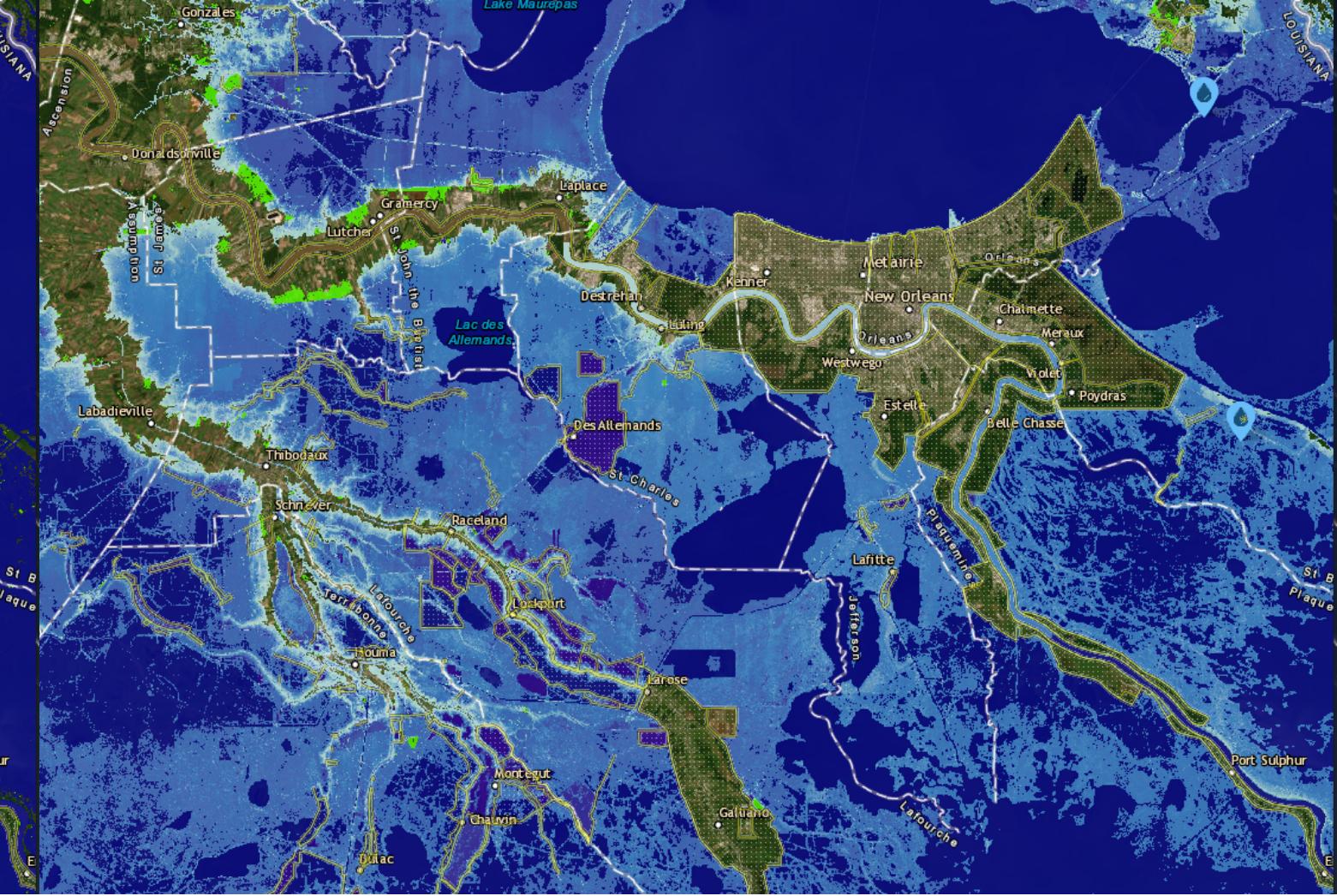
Doug Brinkerhoff et al.
University of Montana

GlaMacLeS
Taft-Nicholson Center

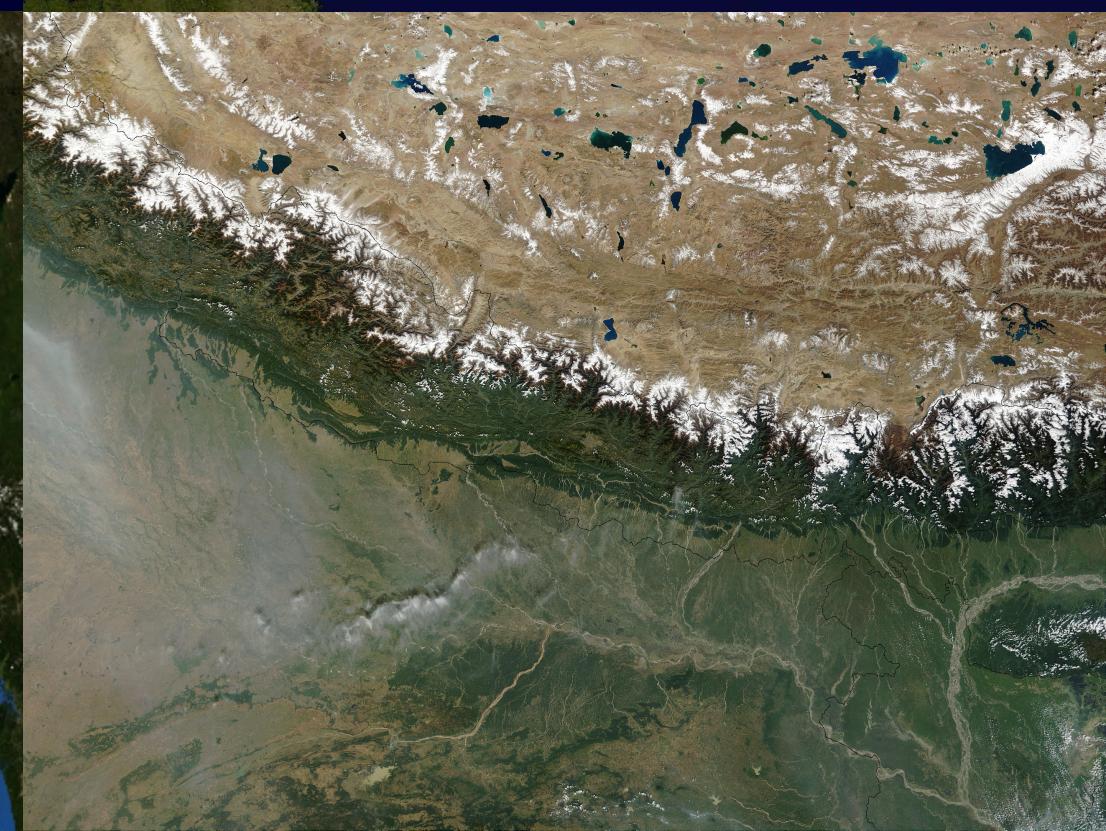
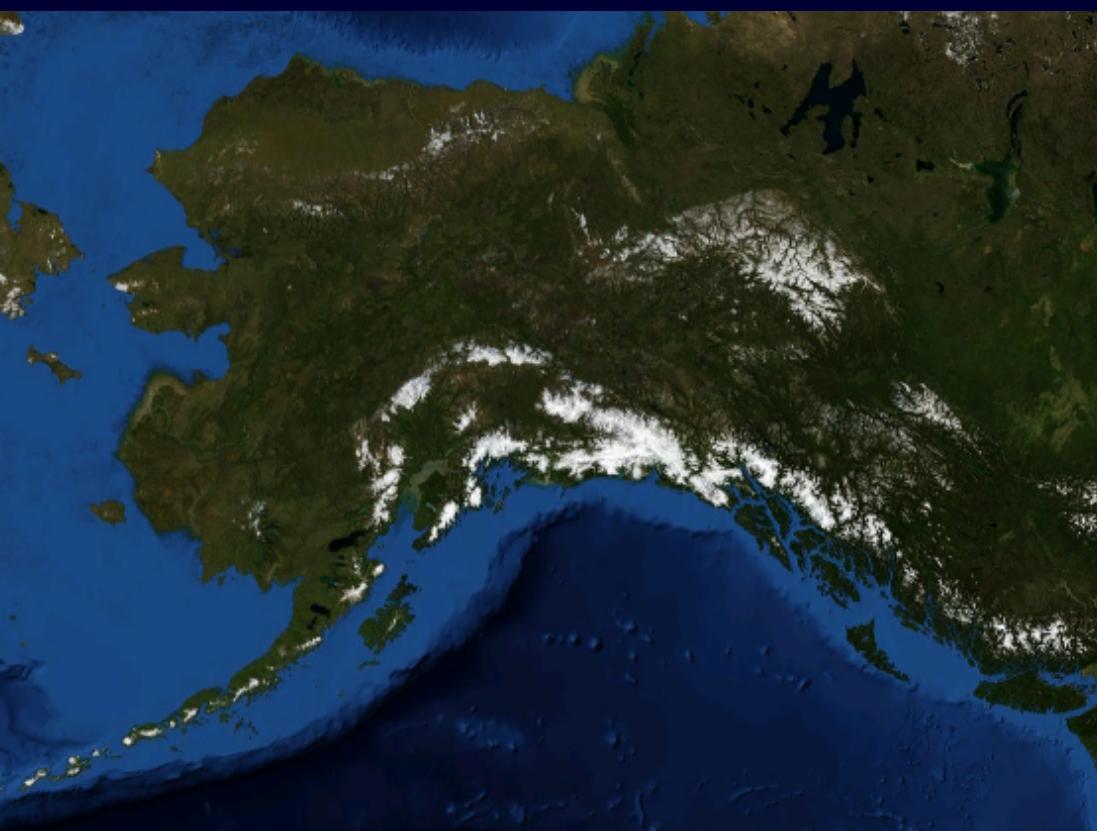
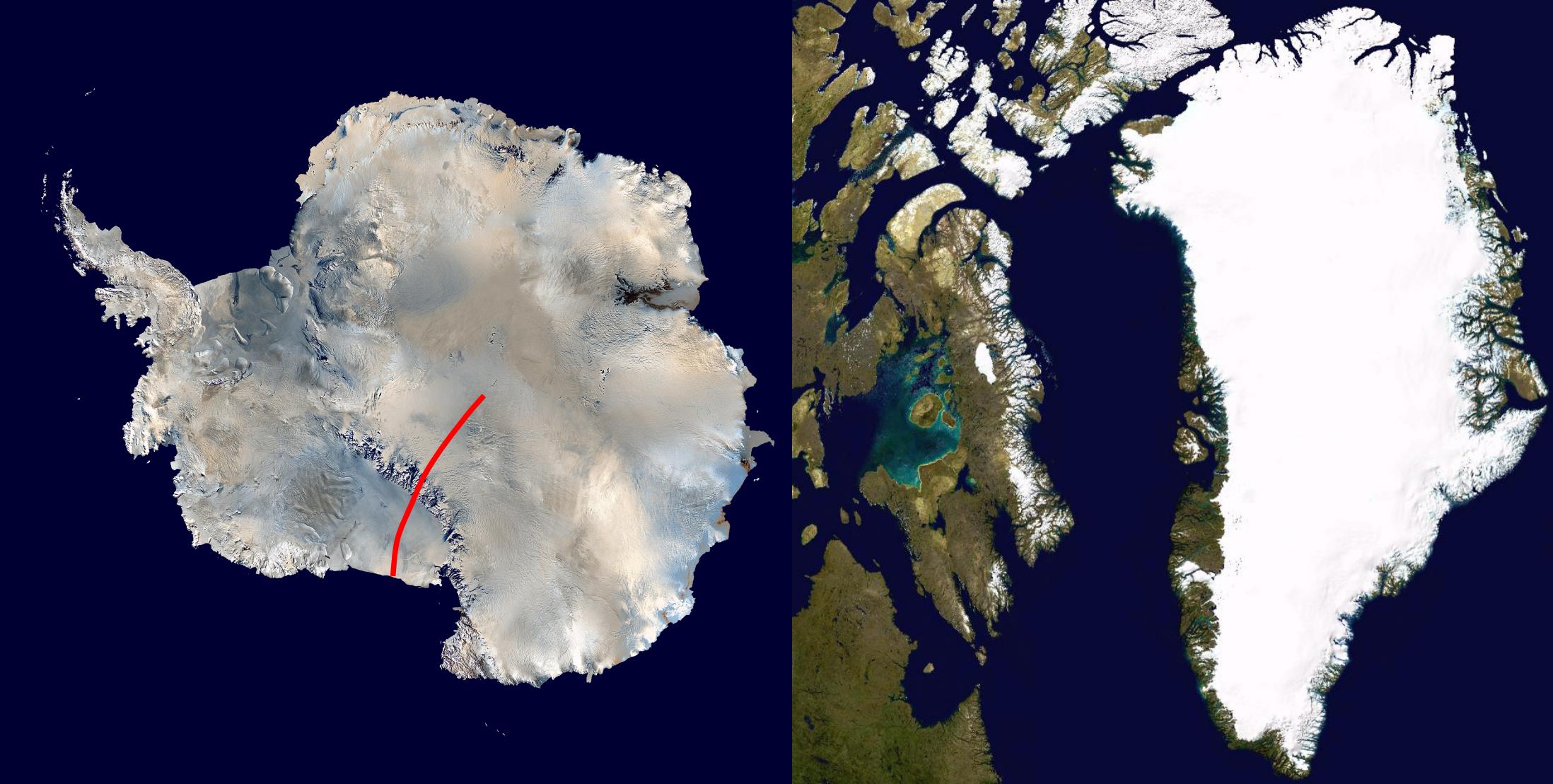




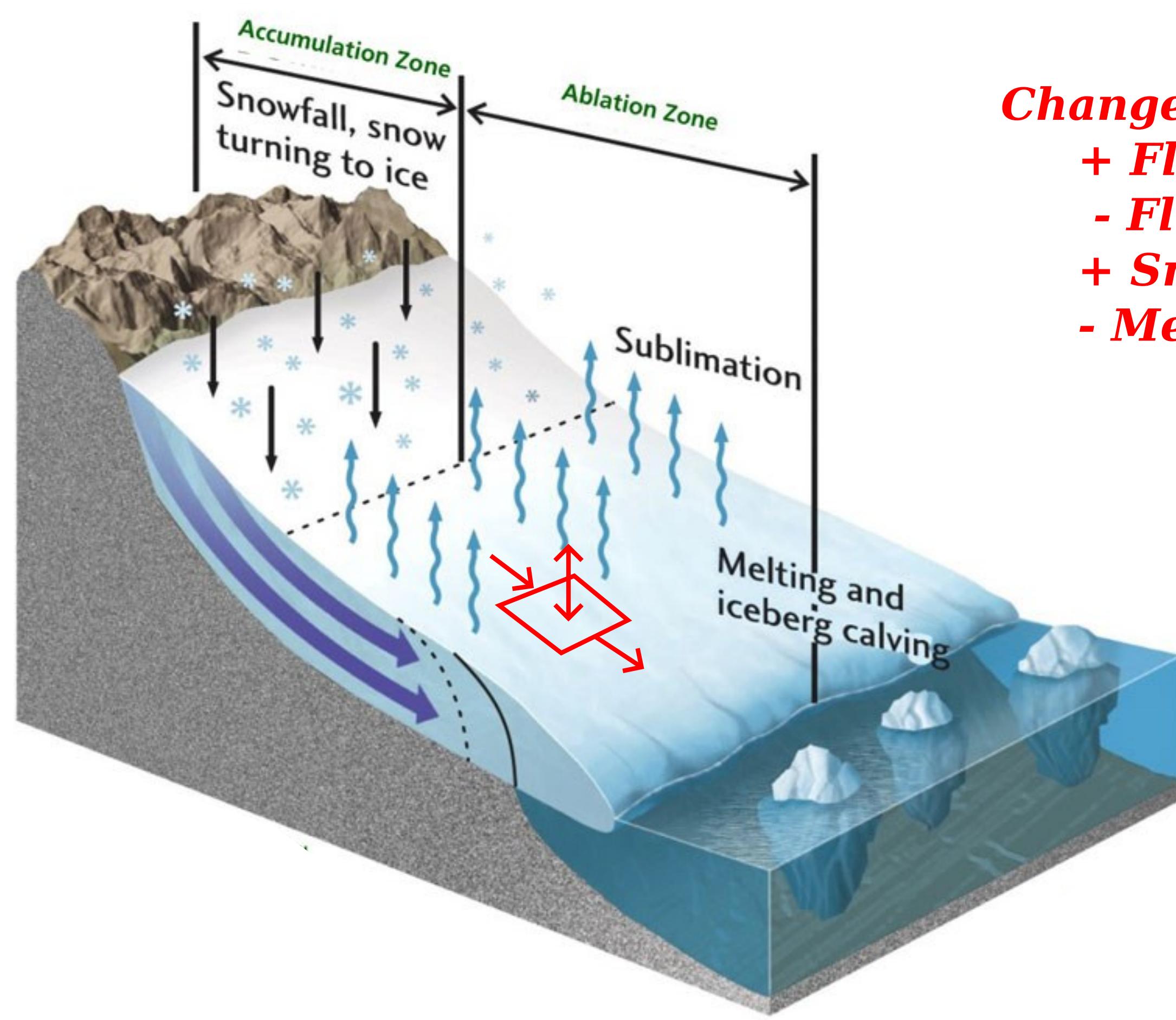
Today

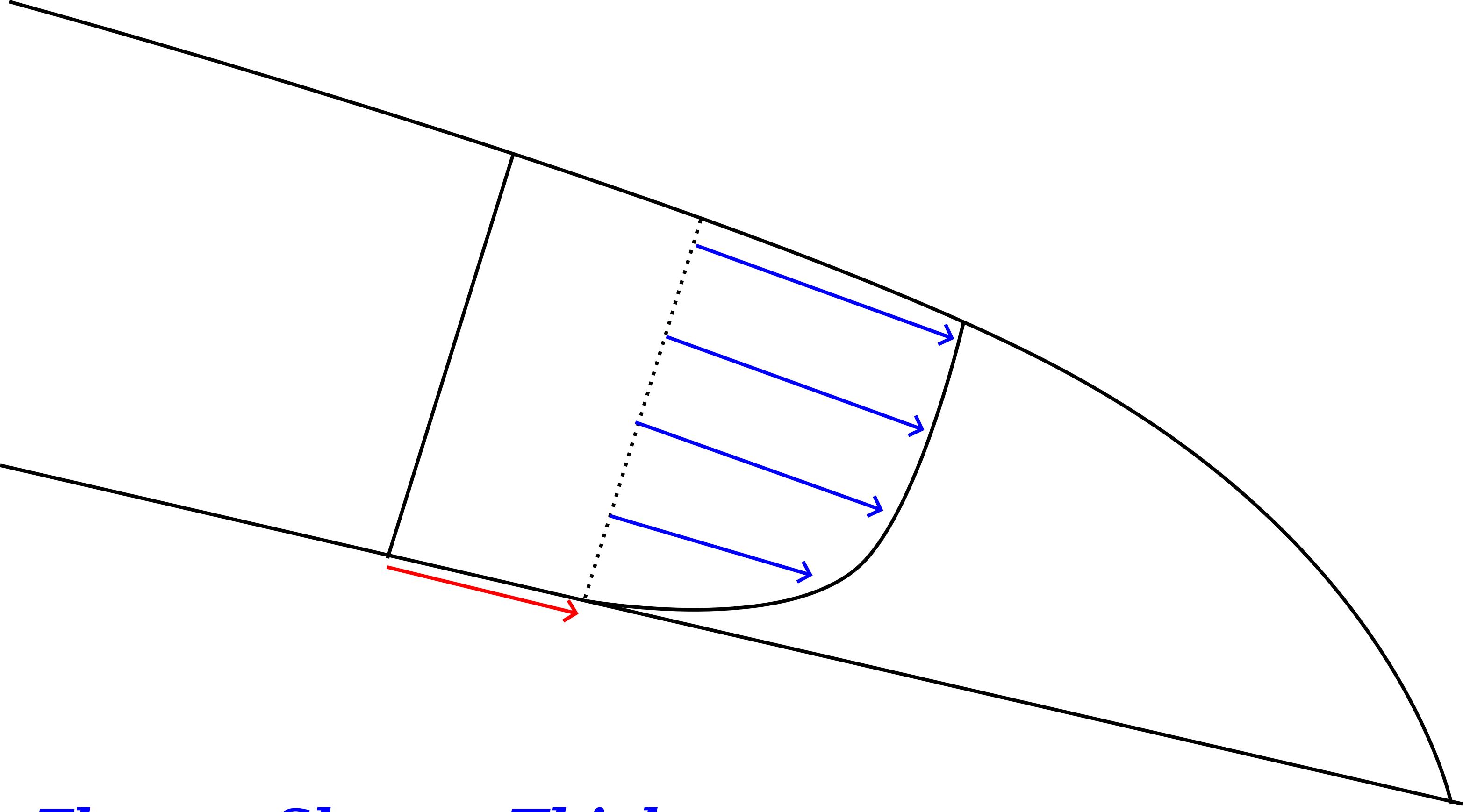


Today + 4ft

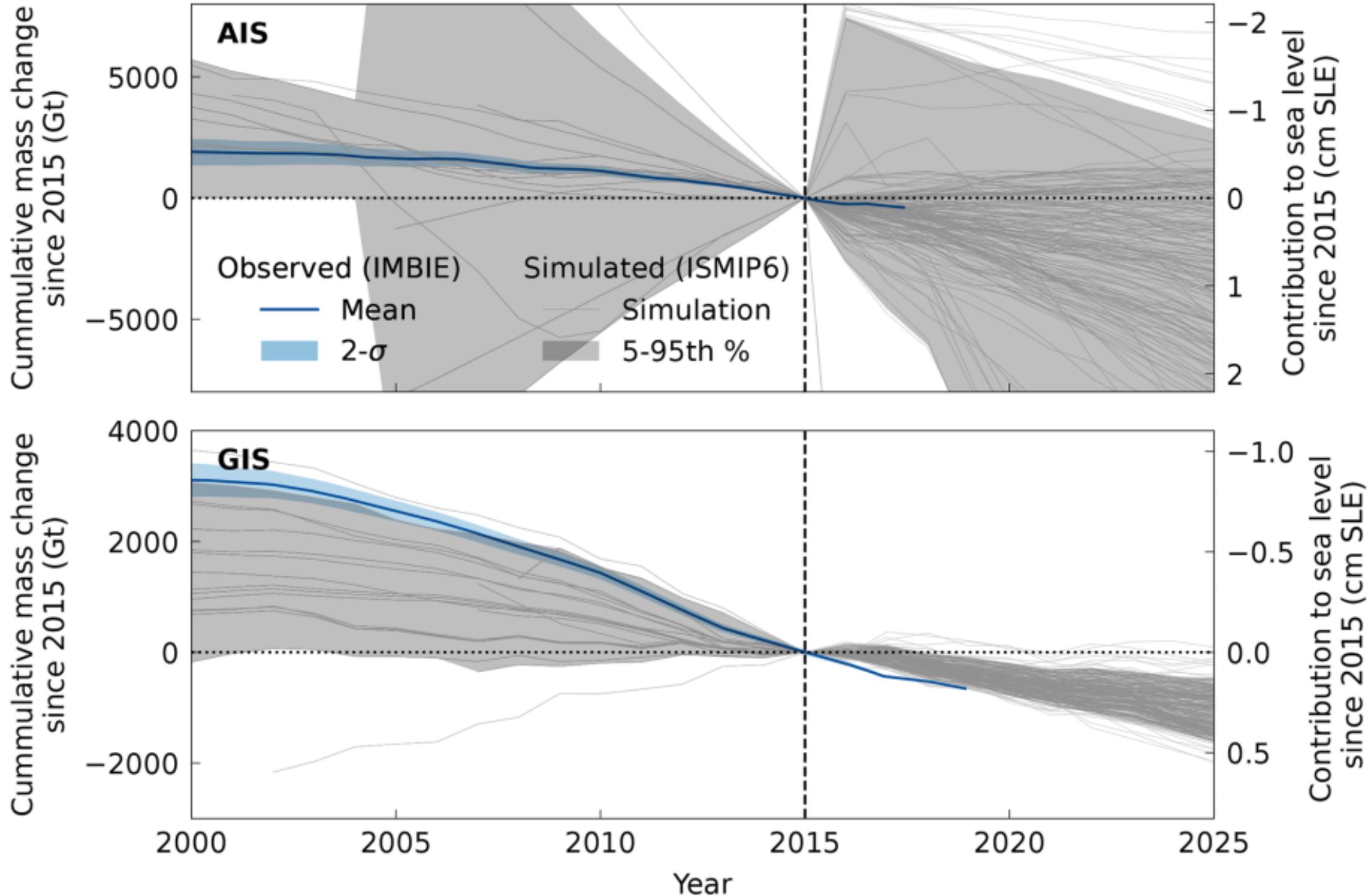


Change in thickness =
+ Flow in
- Flow out
+ Snow
- Melt





Flow = Slope x Thickness



What would Montana's Centennial Valley looked like during the last ice age?



During the last Ice Age, which peaked around 20,000 years ago during the Late Pleistocene epoch, Montana's Centennial Valley would have been significantly different from its present-day landscape. The Ice Age, marked by extensive glaciation, profoundly impacted the region's topography, climate, and ecology.

1. **Glacial Coverage:** The Centennial Valley, like much of Montana, was heavily influenced by glacial activity. The valley would likely have been covered by large glaciers or been adjacent to major ice sheets, such as the Cordilleran Ice Sheet. These glaciers carved out valleys, created glacial lakes, and left behind various glacial landforms like moraines and outwash plains.
2. **Climate:** The climate during the Ice Age was much colder and wetter compared to today. This colder climate supported the growth and maintenance of glaciers and ice sheets in the region. Summers would have been short and cool, while winters were long and extremely cold.
3. **Vegetation and Wildlife:** The vegetation in the Centennial Valley during the Ice Age would have been starkly different. The landscape would have been dominated by tundra and boreal forest ecosystems. Plant life would have consisted mainly of hardy species adapted to cold conditions, such as shrubs, grasses, and small trees like spruce and fir. Wildlife would have



Relative Advance and Retreat, 1972-2019

