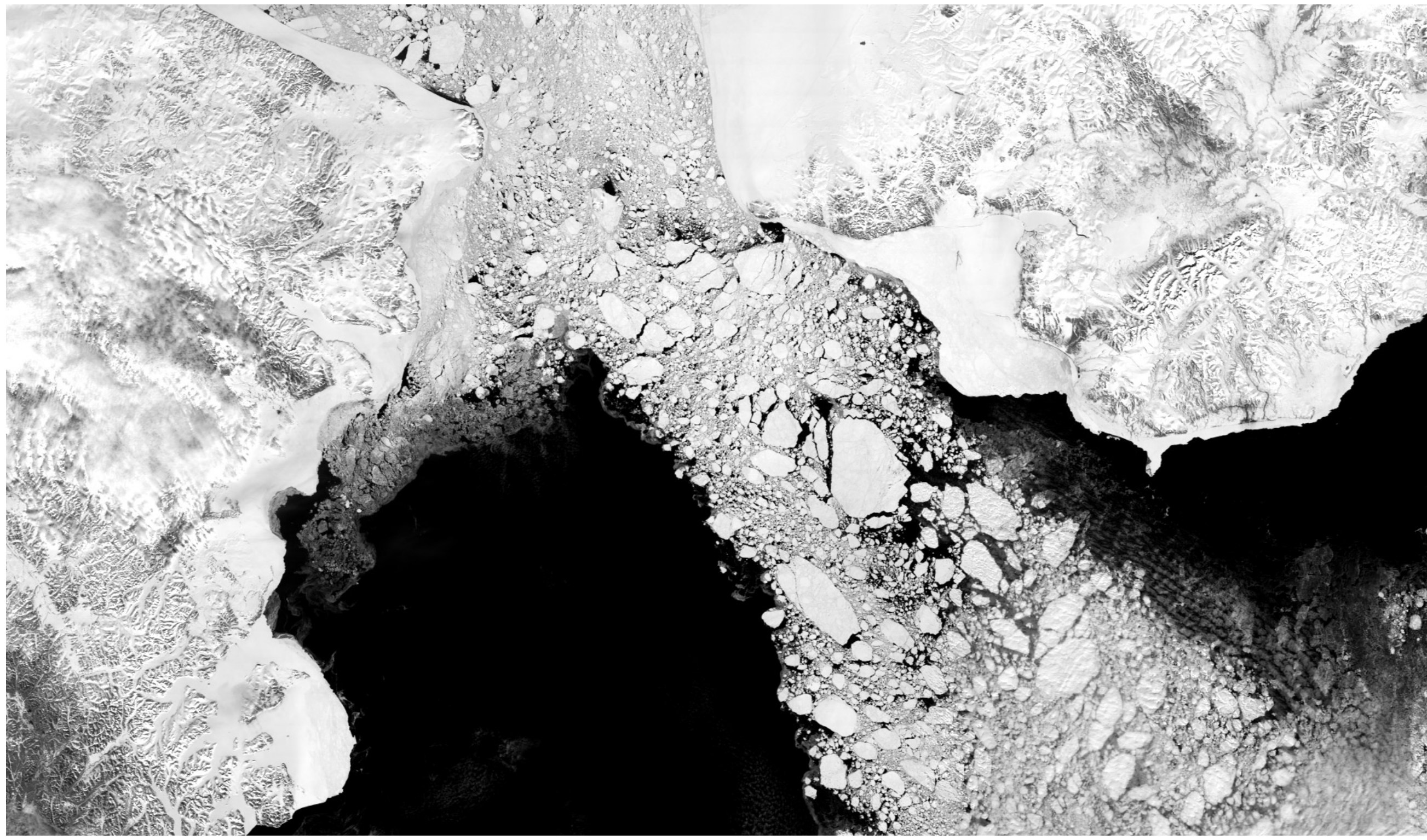


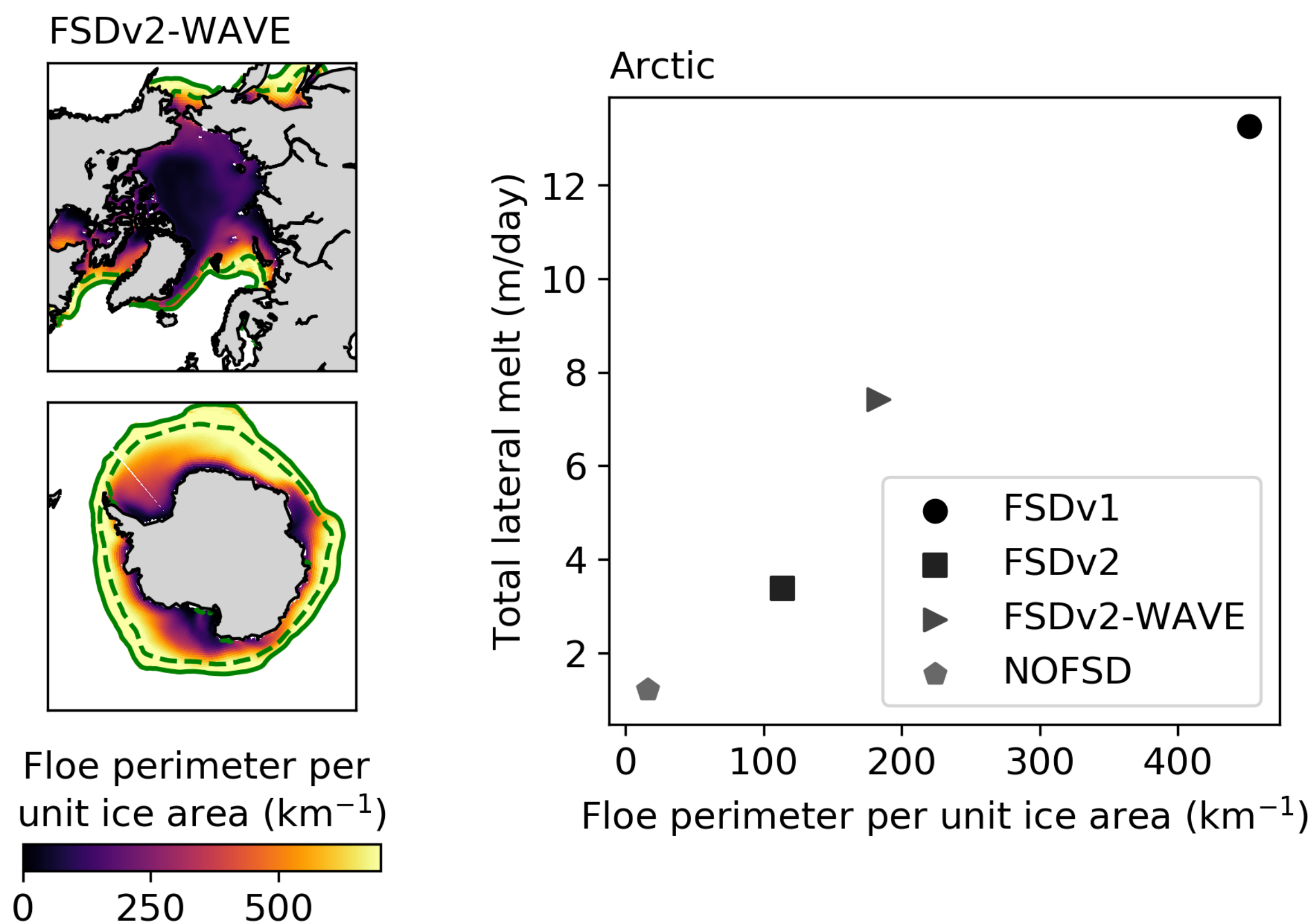
# Sea ice is made up of floes



Floes in the Bering Sea (NASA)

Sea ice is composed of floes that range in horizontal scale from meters to many kilometres (left). Floe size variability is not represented in CMIP5 nor CMIP6 models

We have developed a new global prognostic coupled ocean surface wave-sea ice model, including floe size variability. This model shows that wave-related processes drive variability in floe perimeter. Perimeter in turn determines the amount of lateral melt that occurs, which is substantially enhanced compared to simulations without floes.



LEFT: Sea ice floe perimeter simulated by our most complex experiment, a coupled ocean surface wave—sea ice model, in March in the Arctic and September in the Antarctic over 2000–2014. RIGHT: Arctic-average floe perimeter versus total Arctic lateral melt over 2000–2014 for different model configurations.

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