

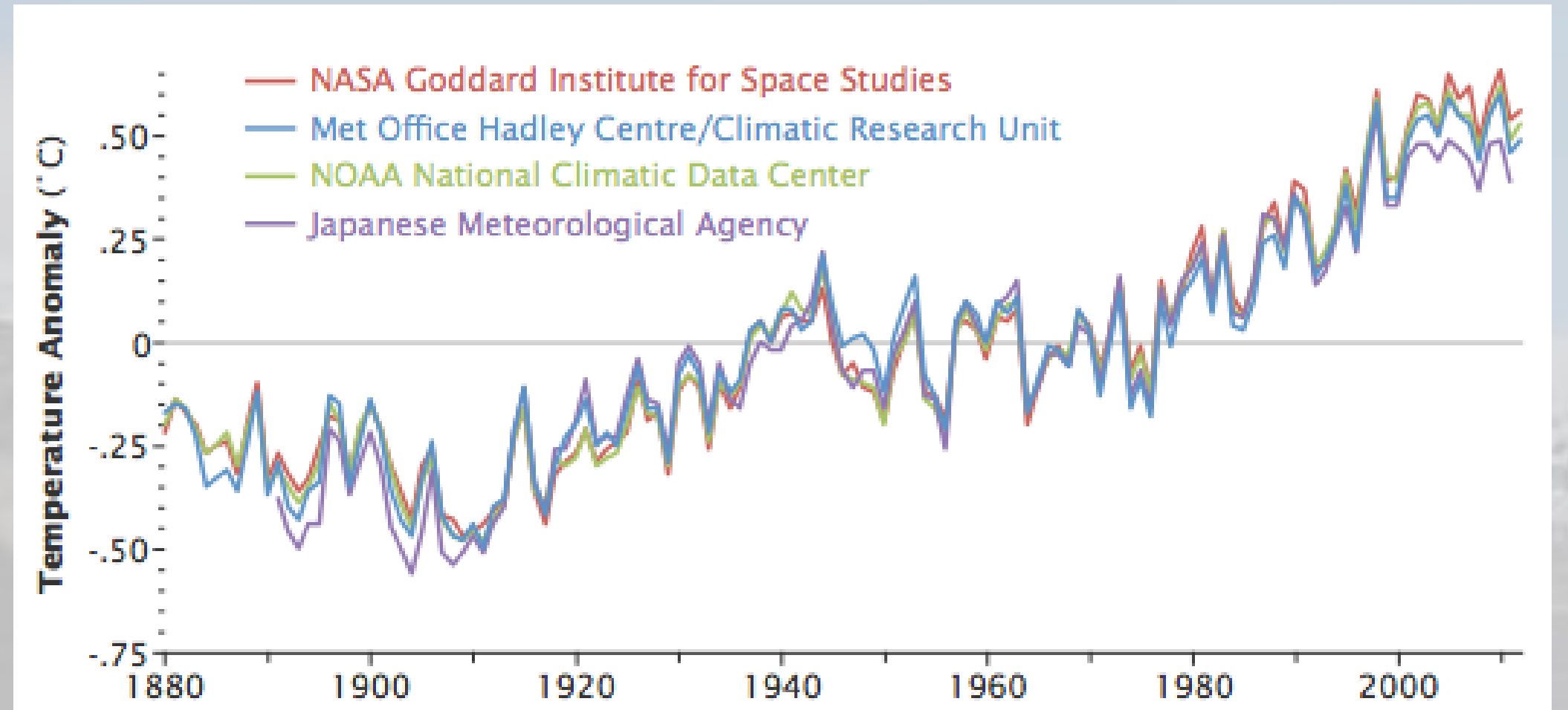
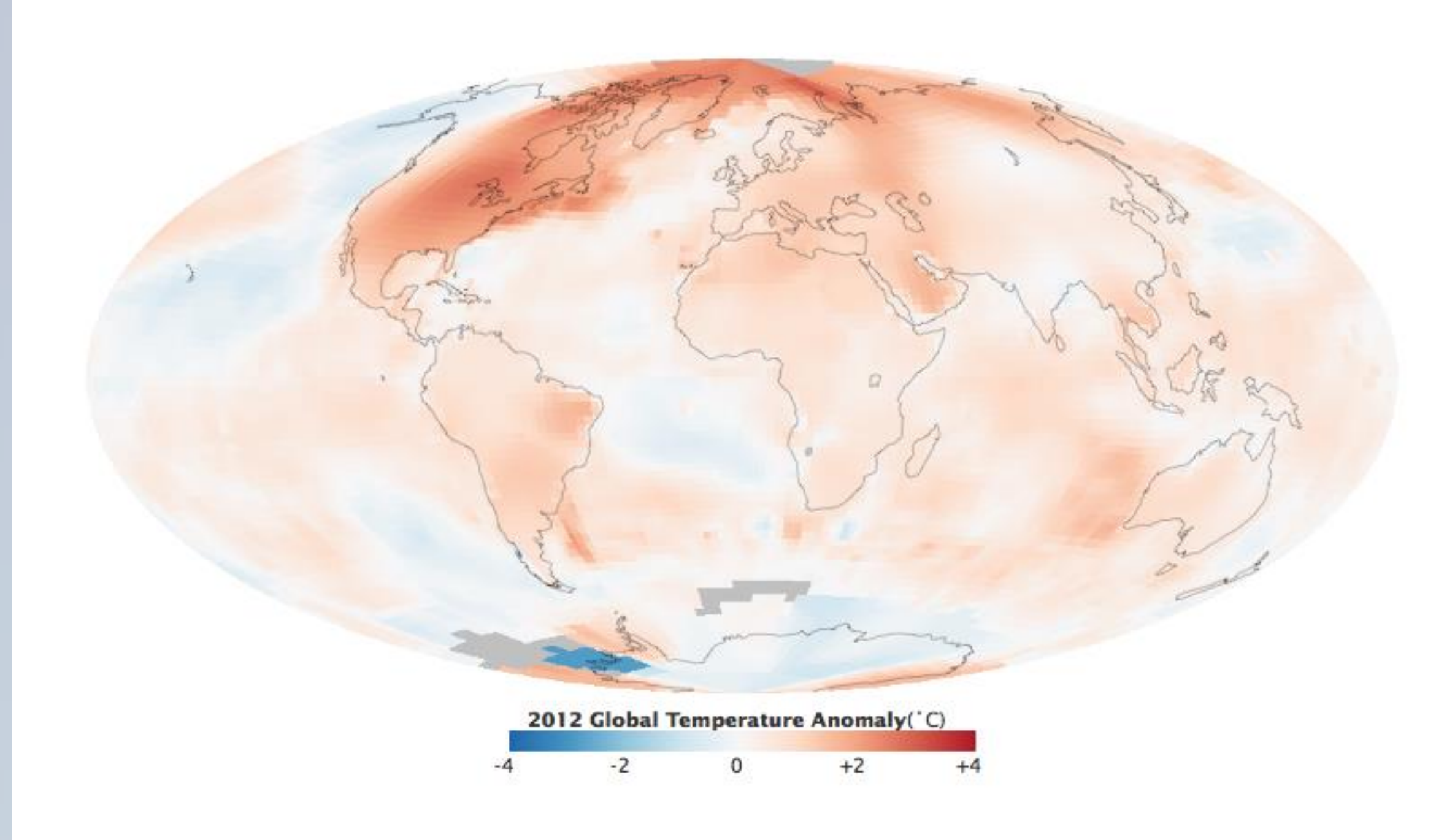
Impact of climate change on shrub distribution in the Arctic

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Climate warming

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- Global temperatures have increased 0.8°C since 1880
 - Temperature increase is two times faster in the Arctic

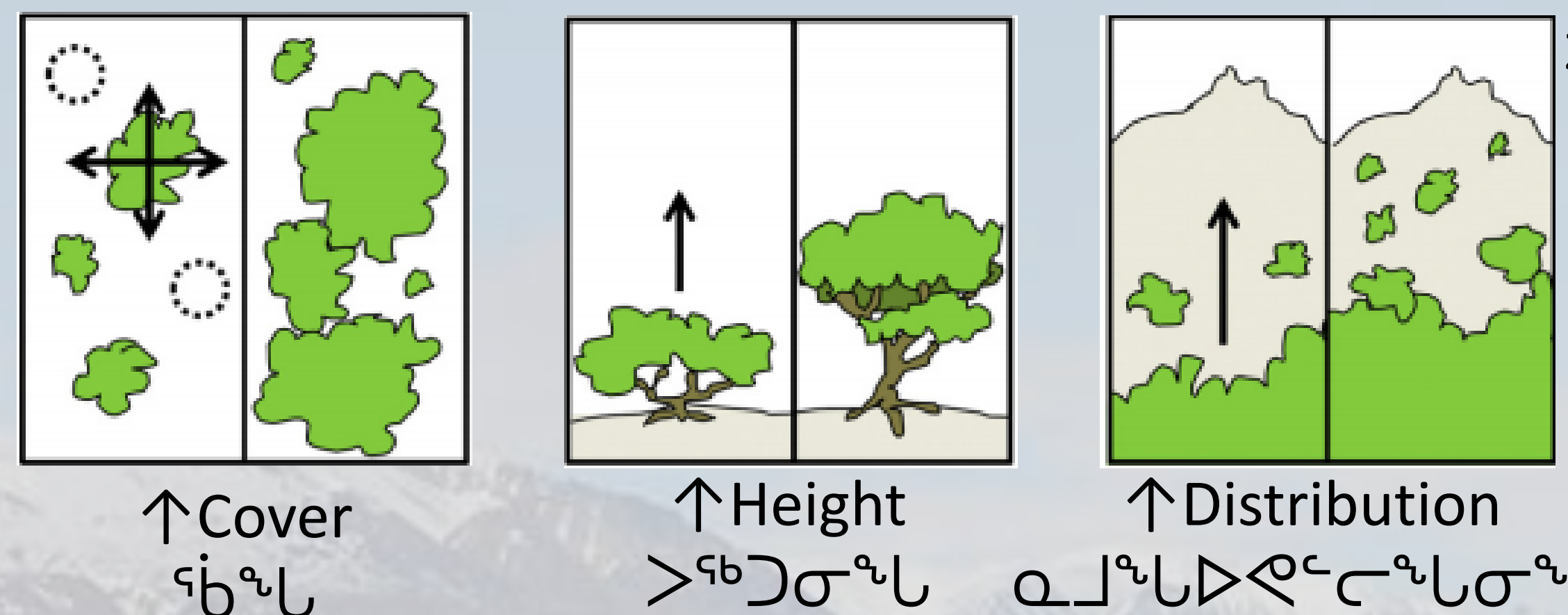
Shrub expansion

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-An increase in erect shrubs ($\geq 0.5m$ height) has been documented through the circumpolar Arctic in response to climate change

- Three main types of shrub increase

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-Greening of the Arctic is partly due to erect shrubs

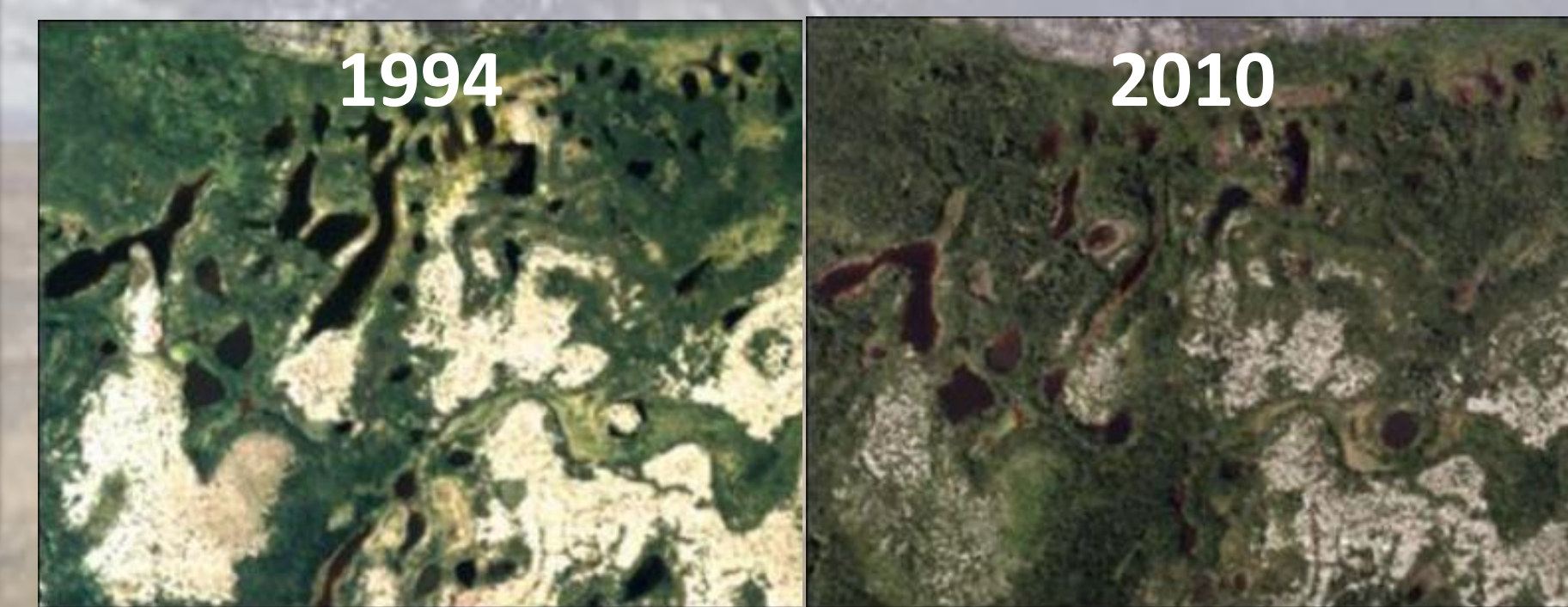
- Shrub increase can impact berry productivity, snow distribution travel on land and wildlife habitat

Is the greening associated to erect shrub increase?

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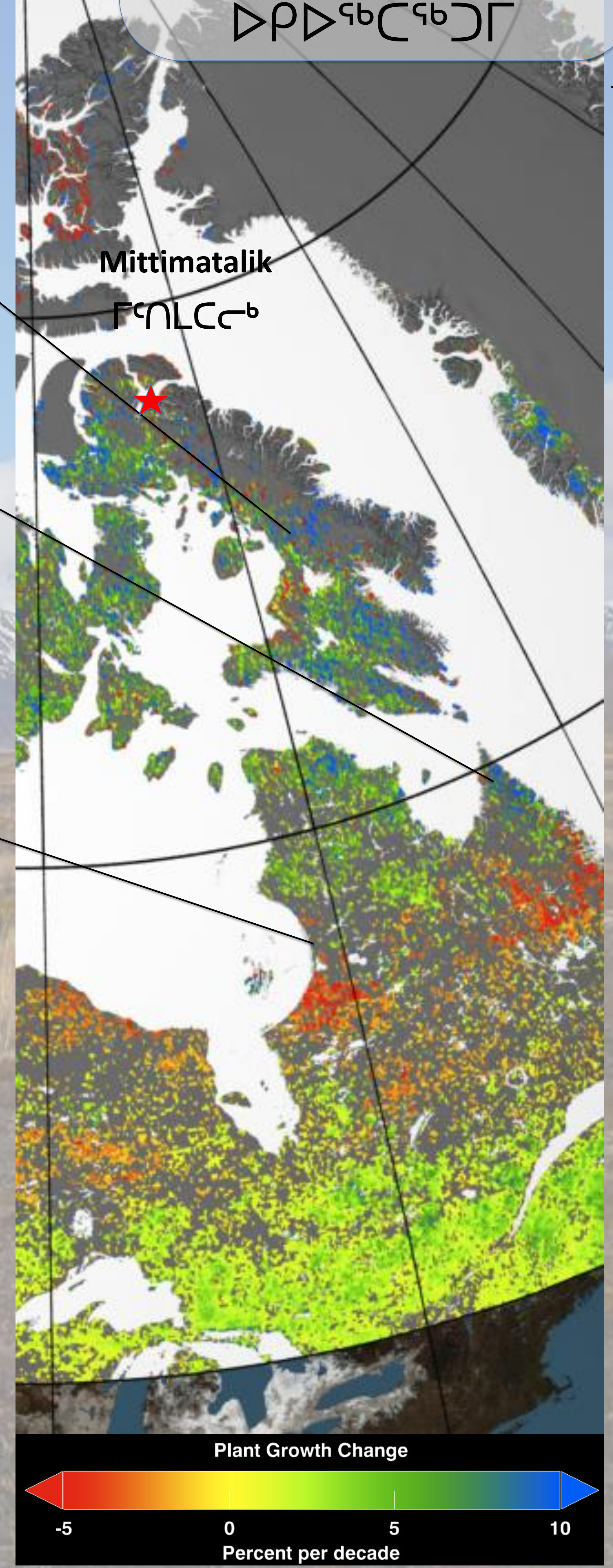


Betula glandulosa
 Resin birch



Greening of the Arctic

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Salix richardsonii - woolly willow on Bylot Island

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-The only erect shrub on Bylot Island and in the area

-The species is at its northern limit of distribution

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¹ http://earthobservatory.nasa.gov/IOTD/view.php?id=80167&eoqn=image&eoqi=related_image;
² Myers-Smith, I. H., Forbes, B. C., Wilkening, M., Hallinger, M., Lantz, T., Blok, D., ... & Hik, D. S. (2011). Shrub expansion in tundra ecosystems: dynamics, impacts and research priorities. *Environmental Research Letters*, 6(4), 045509.; ³ Tremblay, B., Lévesque, E., & Boudreau, S. (2012). Recent expansion of erect shrubs in the Low Arctic: evidence from Eastern Nunavik. *Environmental Research Letters*, 7(3), 035501.; ⁴ http://www.bennyskaktus.dk/Picpage6_2.htm; ⁵ Provencher-Nolet, L. 2014. Détection de changement à court terme de la toundra arbutive à partir de photographies aériennes, région d'Umiujaq, Nunavik (Québec, Canada). Mémoire. Québec, Université du Québec, Institut national de la recherche scientifique, 172 p.; ⁶ <http://nature.ca/aafloa/data/www/wlsari.htm>; ⁷ <http://www.nasa.gov/topics/earth/features/growth-shift.html>