

Changing patterns of polar research

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What is polar research?

- "Polar research" is an interdisciplinary grouping from a number of fields
- Primarily defined by geographic focus, beyond 60° N/S
- Growing work outside these regions - the cryosphere and the 'third pole'
- Originally very oriented towards geographic exploration, since diversified
- Different patterns of work in the Arctic and Antarctic
- Changes partly reflective of general scientific trends, partly issues specific to the polar context



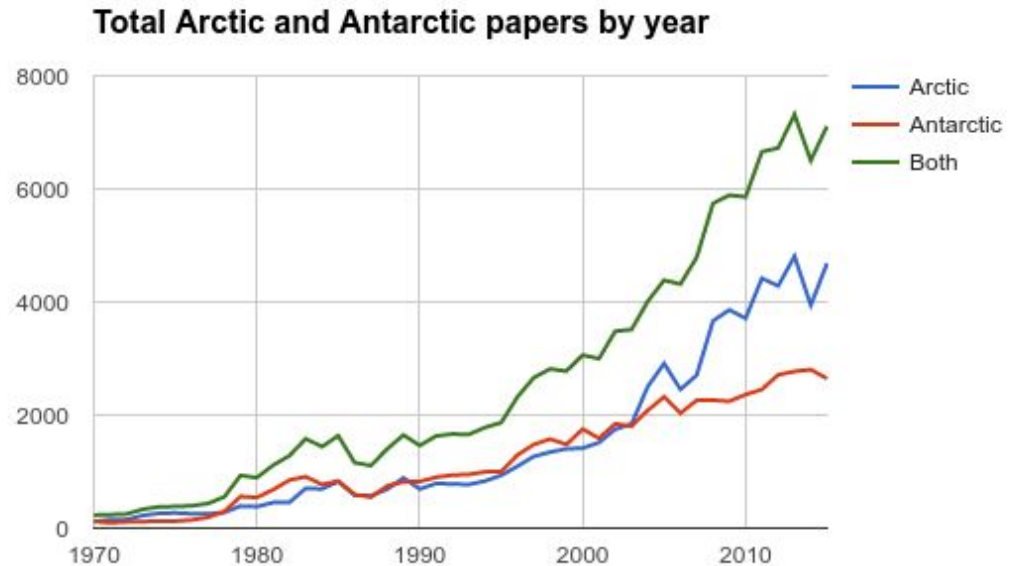
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How much of it is there?

- Steady increase over time
- Mostly "real" increase, partly reflecting the shift to journals
- Divergence c.2005, with increasing Arctic interest
- 4% of material overlaps



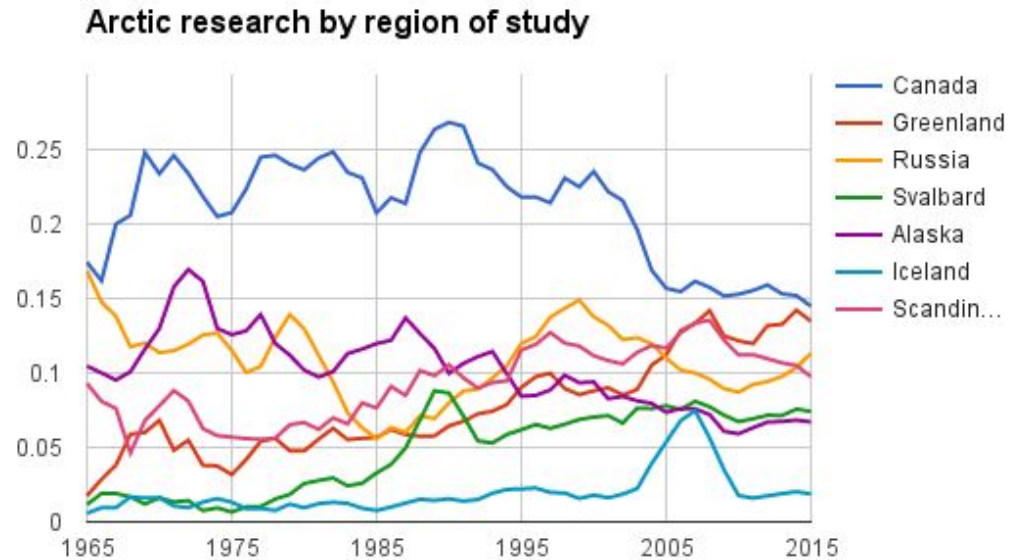
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Where is it focused?

- Historically, most Arctic research done on Canada, but recent drop
- General decline in Alaska, rise in Greenland, Scandinavia, Svalbard
- Some temporary peaks of interest, eg Iceland



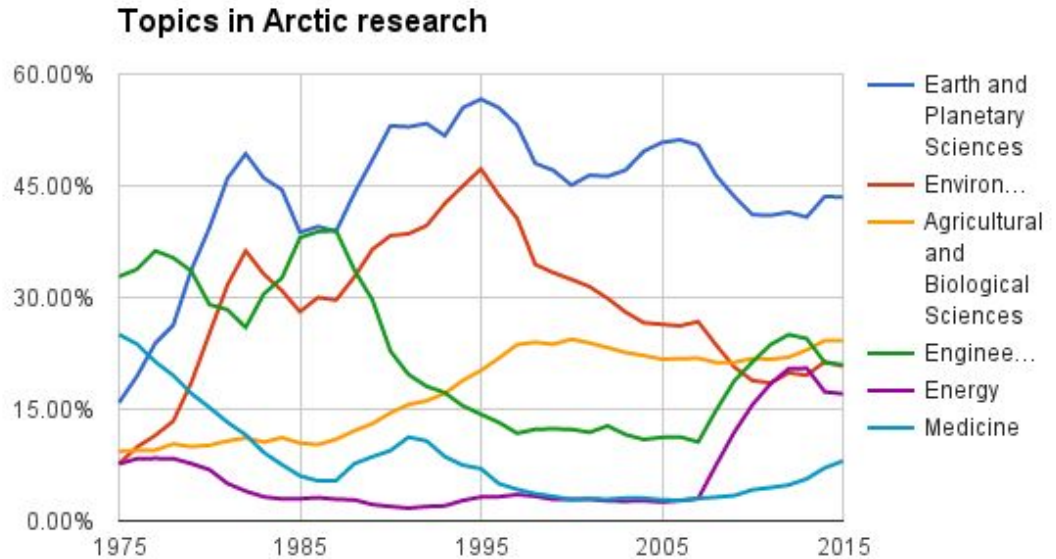
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What is it looking at?

- Less emphasis on environmental science from ~1995
- Fall of engineering, medicine
- Rise of fisheries in 90s, energy in 2000s - and the return of engineering



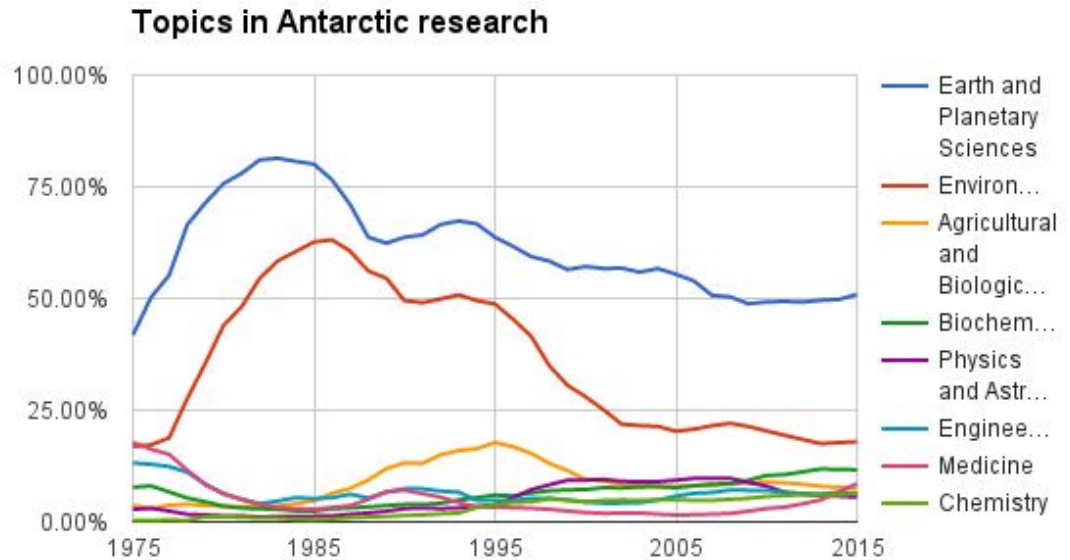
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What is it looking at?

- Earth and environment dominate in the 80s, earth science still majority
- Rise of fisheries, biochemistry/genetics, & chemistry in the 90s
- Fall and rise of medicine



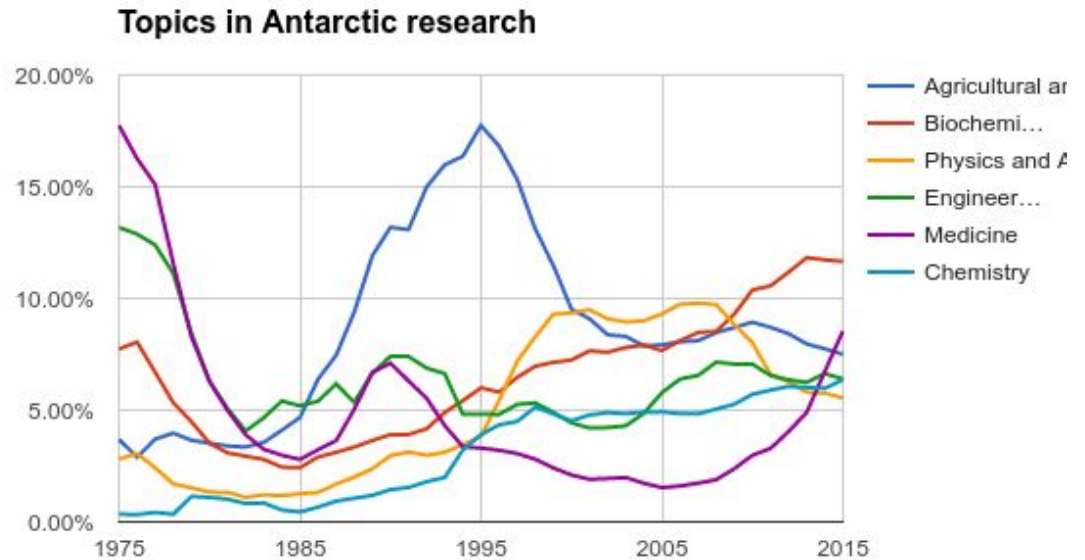
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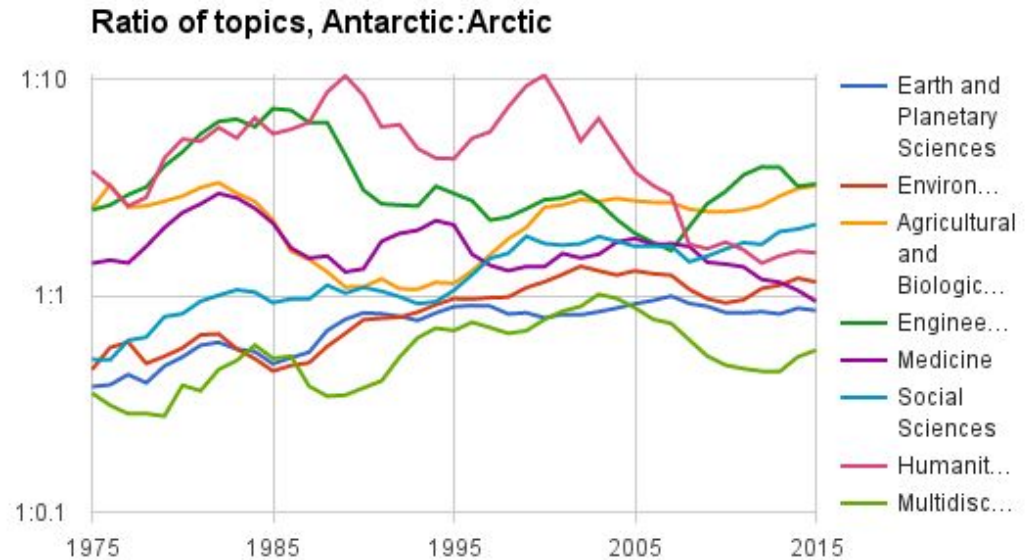
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Relative trends

- Historically most topics primarily Arctic, except earth/environmental & multidisciplinary
- Most flattening out
- Unexpected shift in 'humanities' towards Antarctic
- Social Sciences now more strongly Arctic



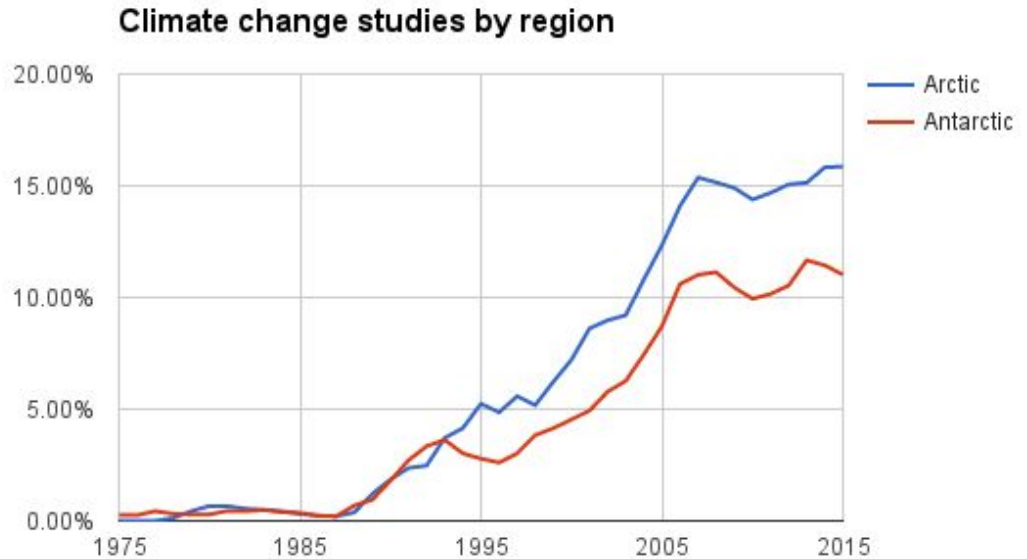
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What suddenly interested people?

- Sharp rise in interest from ~1987 onwards
- Increased focus on Arctic from ~1993
- ~80% of this uses 'climate change', ~20% another term



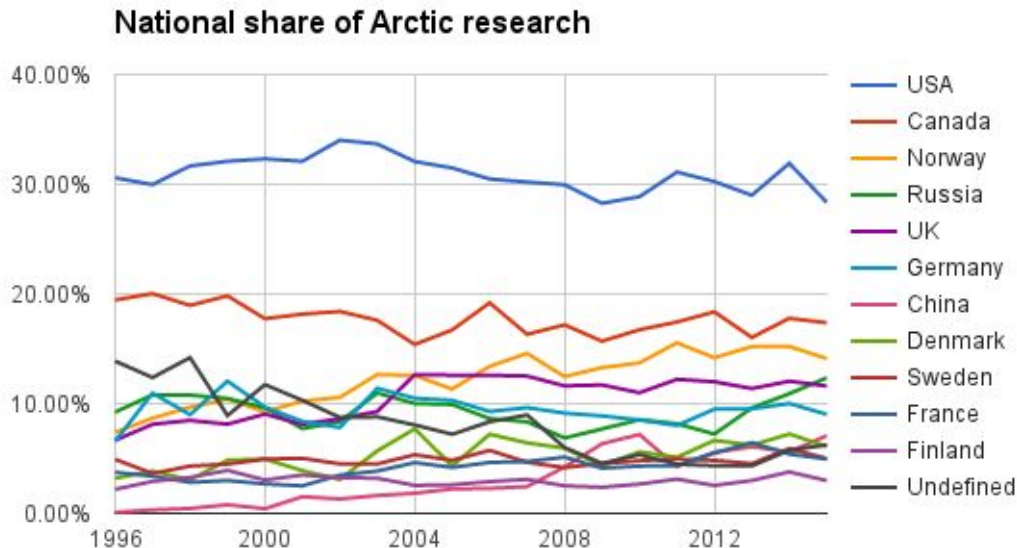
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Who's doing it? (Arctic)

- US has by far the largest Arctic output, followed by Canada
- Effects of collaboration: notional total is 125% (!)
- General rise in share of smaller countries
- Numbers unreliable before ~1995



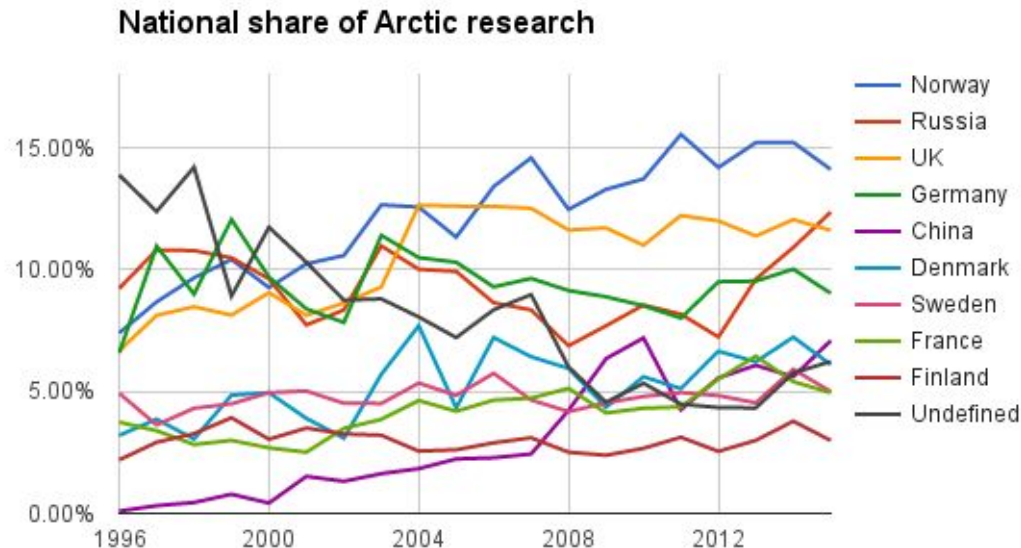
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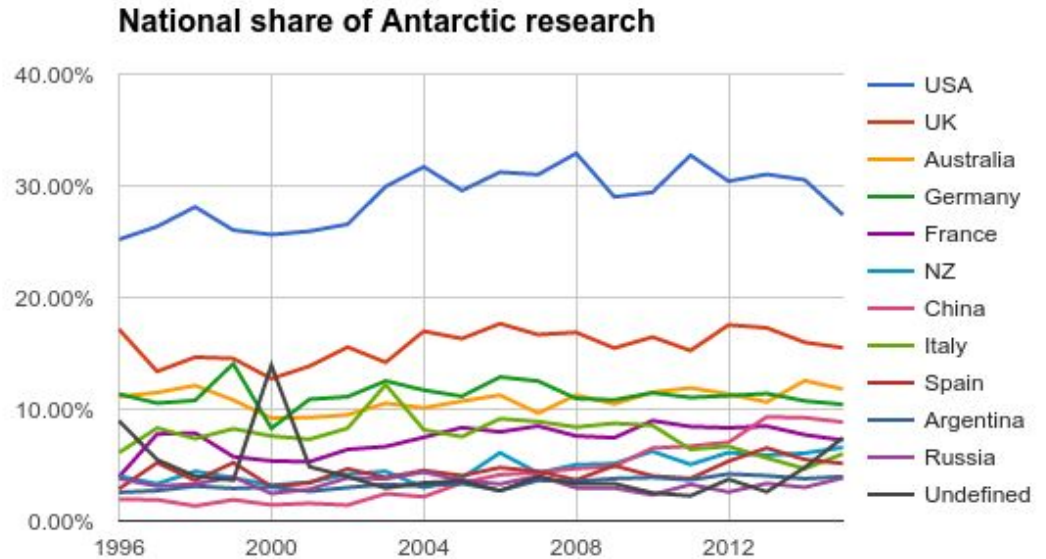
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Who's doing it? (Antarctic)

- US predominates, then UK, then - as expected - more countries with major Antarctic operations
- Most countries relatively stable, but note rise of China
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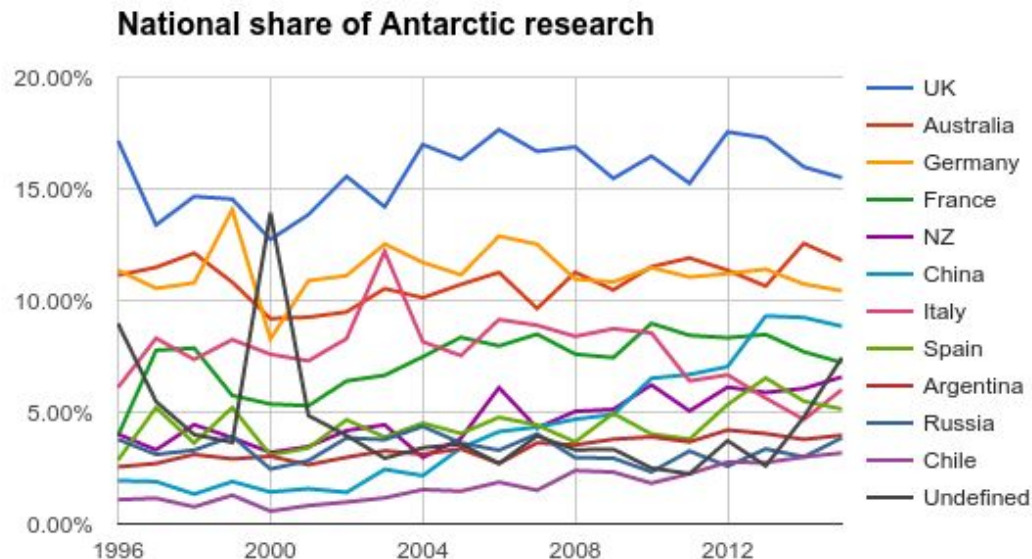
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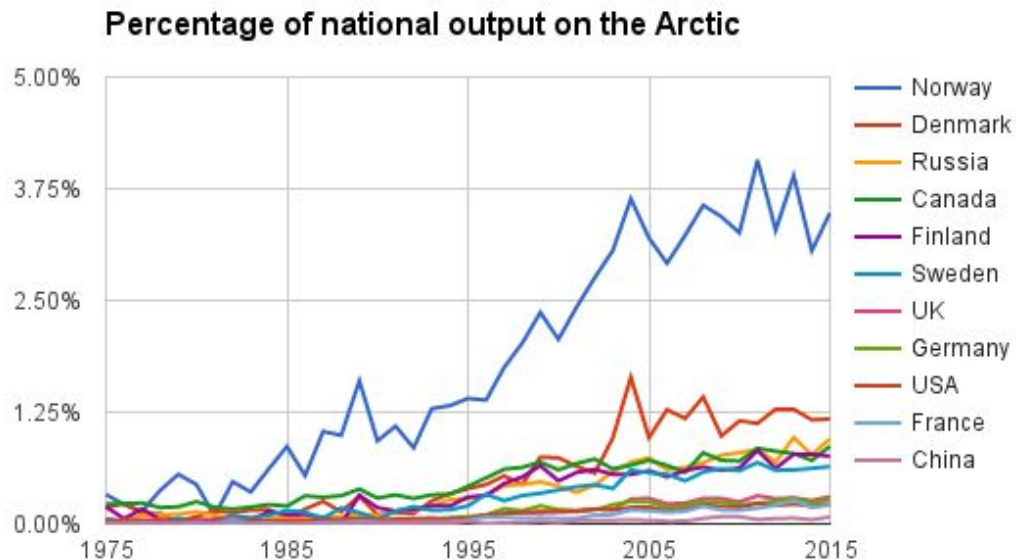
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Who's most focused? (Arctic)

- by proportion of research on to the Arctic, Norway stands out, ~3%
- ~1%, Arctic nations
- ~0.5%, other countries
- No country has any noticeable drop over time, most growing



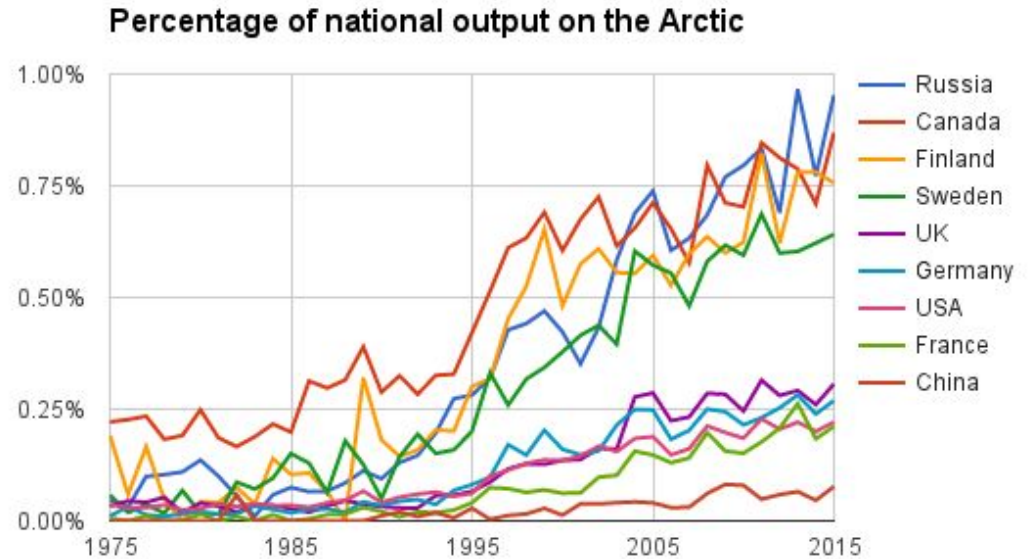
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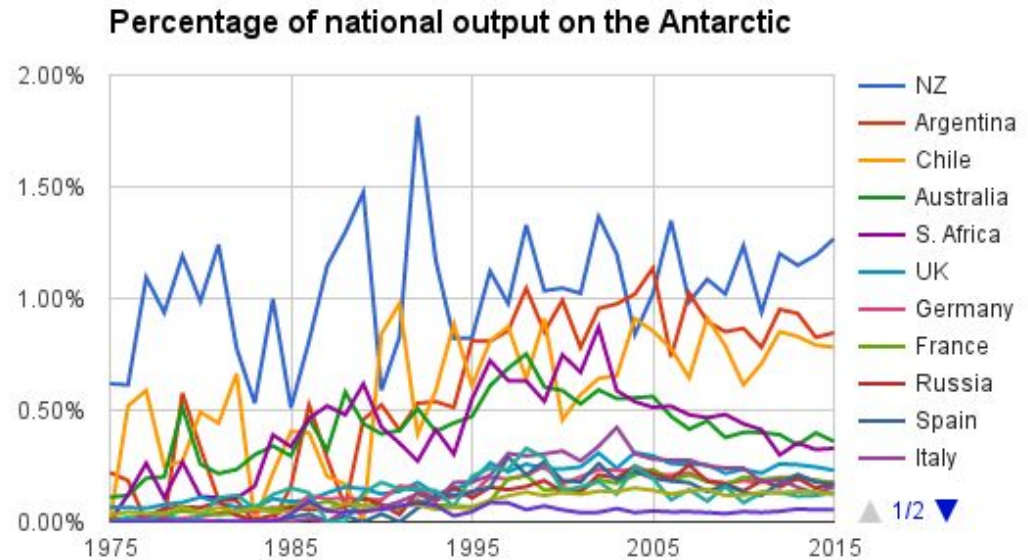
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Who's most focused? (Antarctic)

- Top 3 are NZ, Chile, & Argentina, stable since 2000 at ~1%
- Second group in slow decline since 2000 (Australia, South Africa)
- Third group still gently declining, some stable



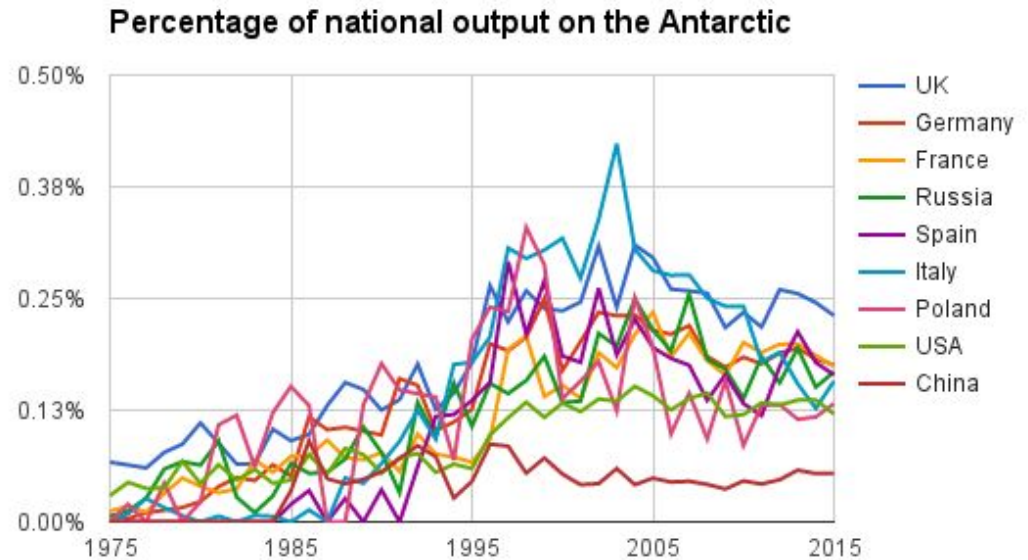
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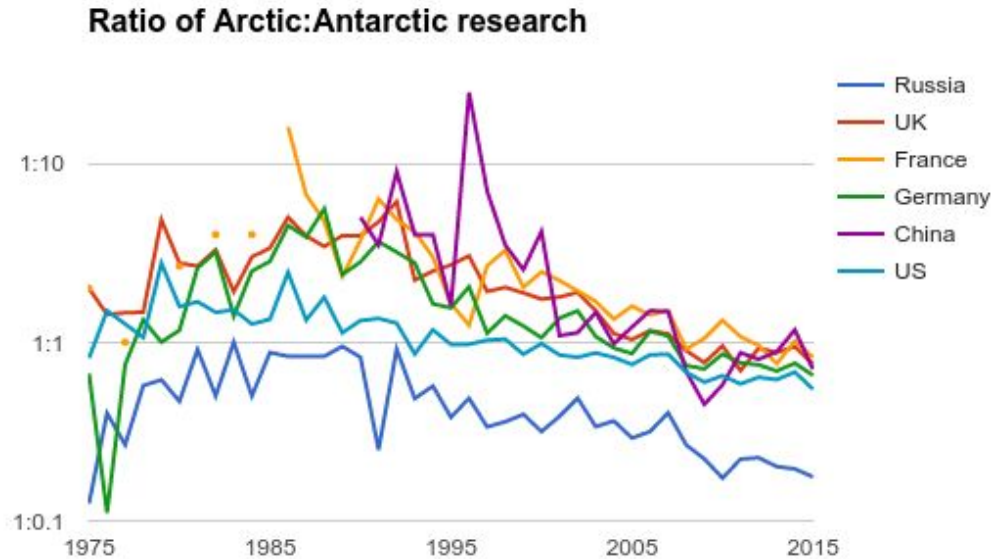
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Who's most focused?

- Every nation now has more Arctic than Antarctic work, with a steady shift since ~1990
- Russia/USSR the only country to always be predominantly Arctic-oriented



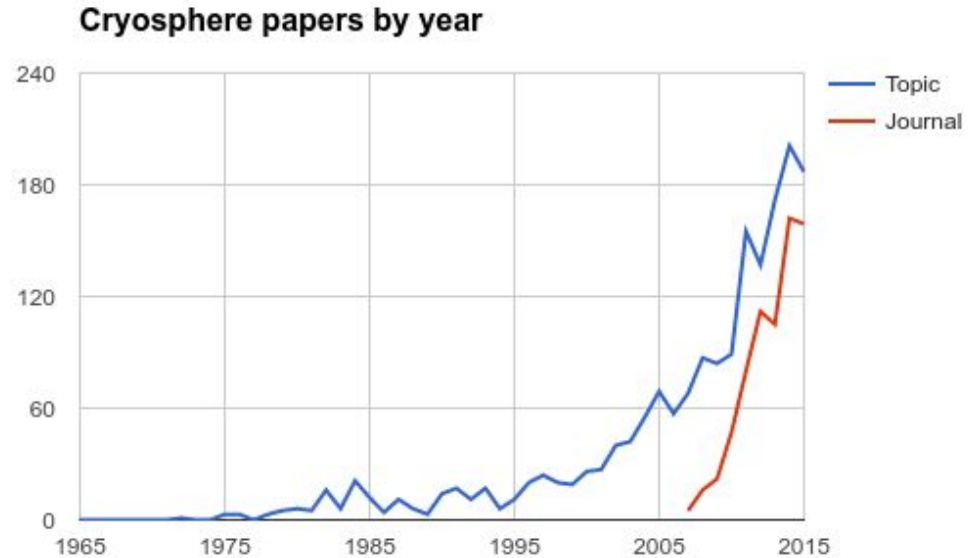
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What about some related concepts?

- "Third Pole" and "Cryosphere"
- "Third Pole" used very rarely in published work
- "Cryosphere" boomed after ~2000
- Note publication volume of the related journal



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