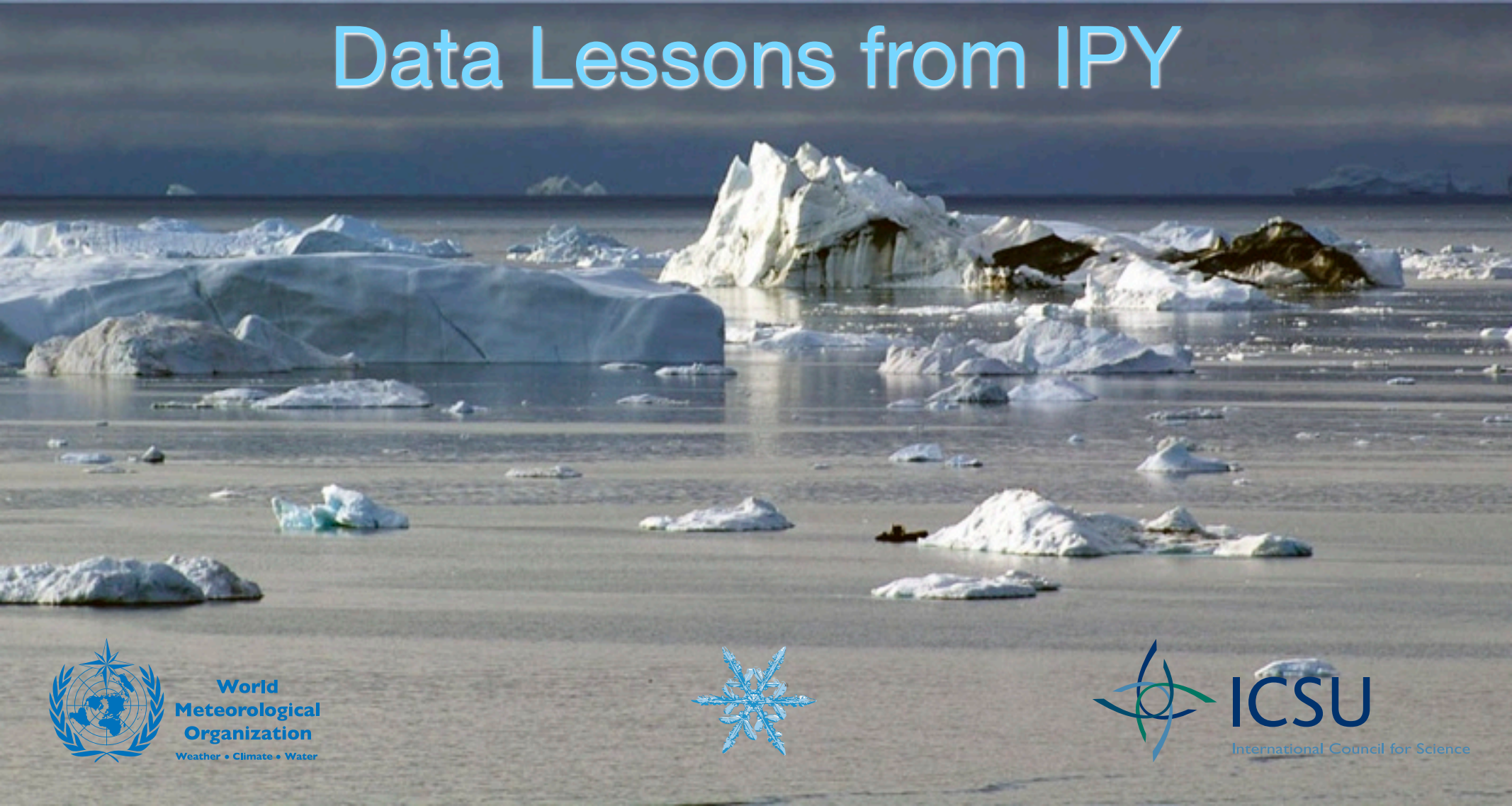


INTERNATIONAL 2007 2008 POLAR YEAR

Data Lessons from IPY



**World
Meteorological
Organization**
Weather • Climate • Water



ICSU

International Council for Science



International Council for Science and World Meteorological Organization:

2011-04-19

NAS



International Council for Science and World Meteorological Organization:

► *PROCLAIM:* International Polar Year 2007-2008



International Council for Science and World Meteorological Organization:

- ▶ *PROCLAIM:* International Polar Year 2007-2008
- ▶ *CONVENE:* Joint Science Committee



International Council for Science and World Meteorological Organization:

- ▶ *PROCLAIM:* International Polar Year 2007-2008
- ▶ *CONVENE:* Joint Science Committee
- ▶ *ESTABLISH:* International Programme Office

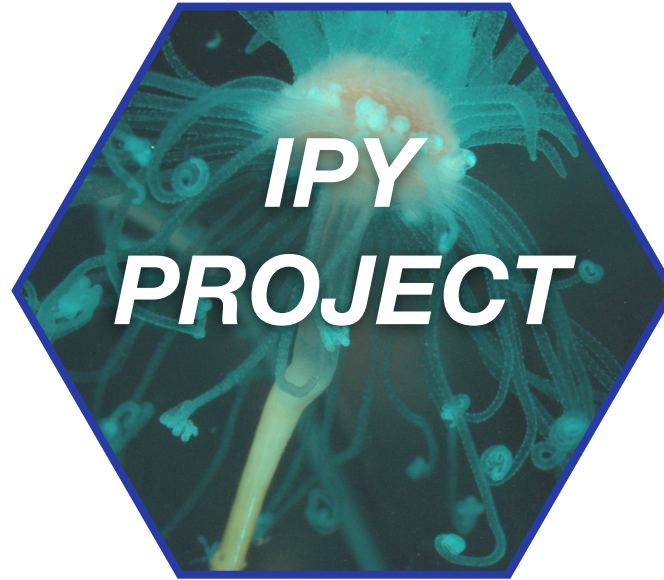


International Council for Science and World Meteorological Organization:

- ▶ *PROCLAIM:* International Polar Year 2007-2008
- ▶ *CONVENE:* Joint Science Committee
- ▶ *ESTABLISH:* International Programme Office
- ▶ *INVITE:* International Proposals for IPY Projects



*Urgent,
Significant*



2011-04-19

NAS



*Urgent,
Significant*

*International
Partnerships*



2011-04-19

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*Urgent,
Significant*

*International
Partnerships*

*Builds
Connections*

**IPY
PROJECT**



2011-04-19

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*Urgent,
Significant*

*International
Partnerships*

*Builds
Connections*

*Store,
Share Data*





*Urgent,
Significant*

*International
Partnerships*

*Builds
Connections*

**IPY
PROJECT**

*Store,
Share Data*

*Education,
Outreach*

2011-04-19

NAS



2011-04-19

NAS

*International
Partnerships*

*Store,
Share Data*

*Urgent,
Significant*



*Builds
Connections*

*Education,
Outreach*

*Expand
Polar Community*



*Urgent,
Significant*

*International
Partnerships*

*Builds
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**IPY
PROJECT**

*Store,
Share Data*

*Education,
Outreach*

*Expand
Polar Community*



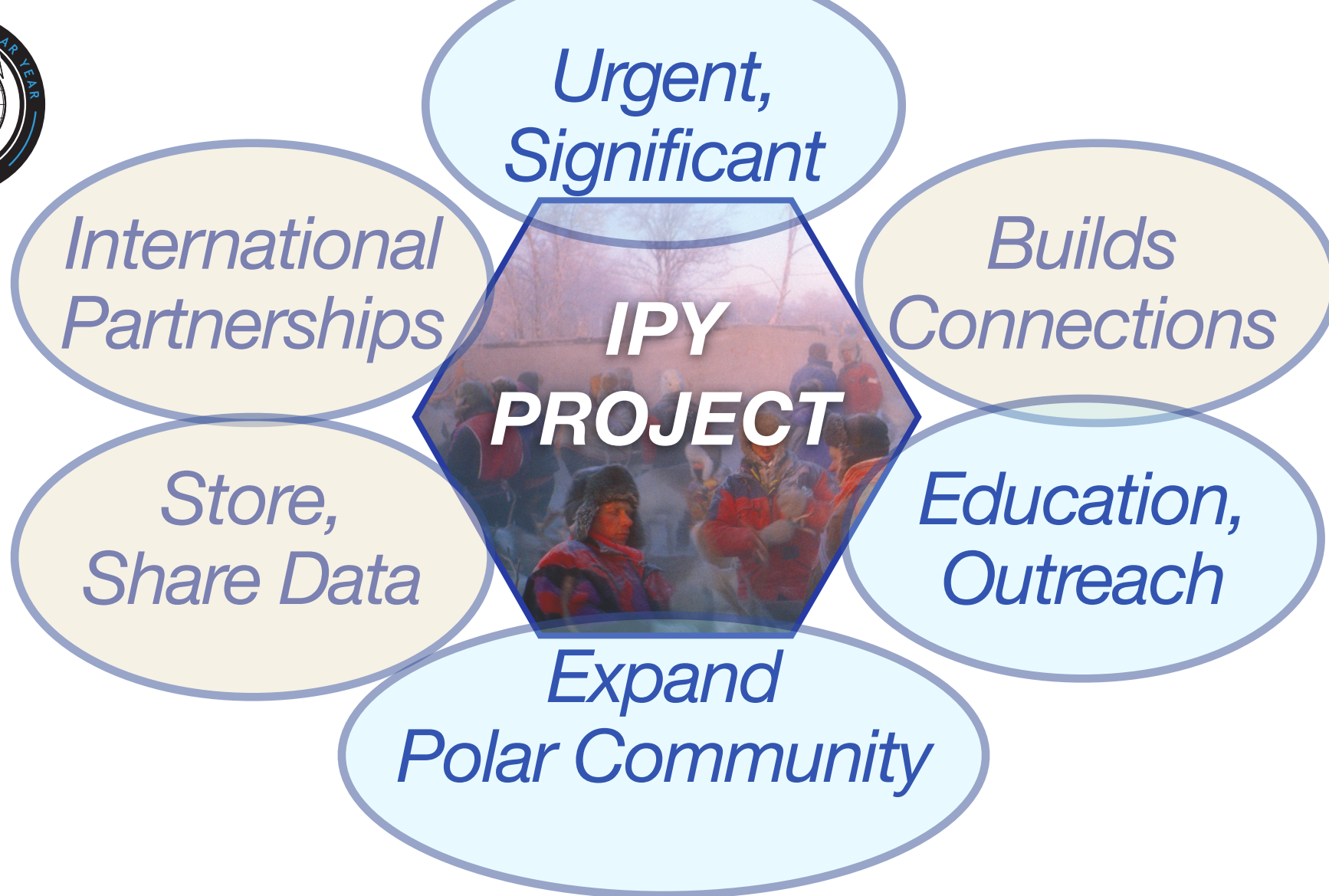
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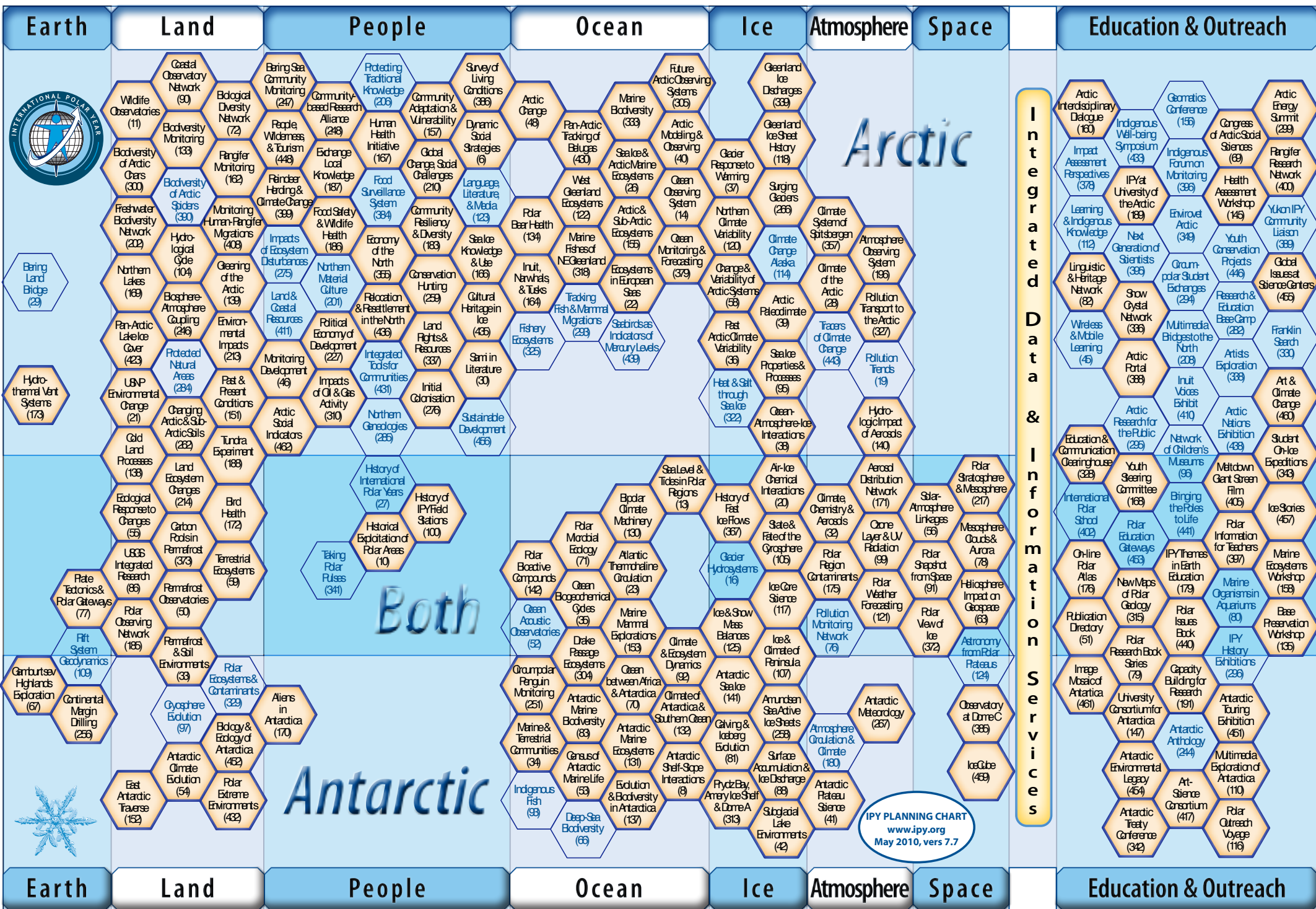
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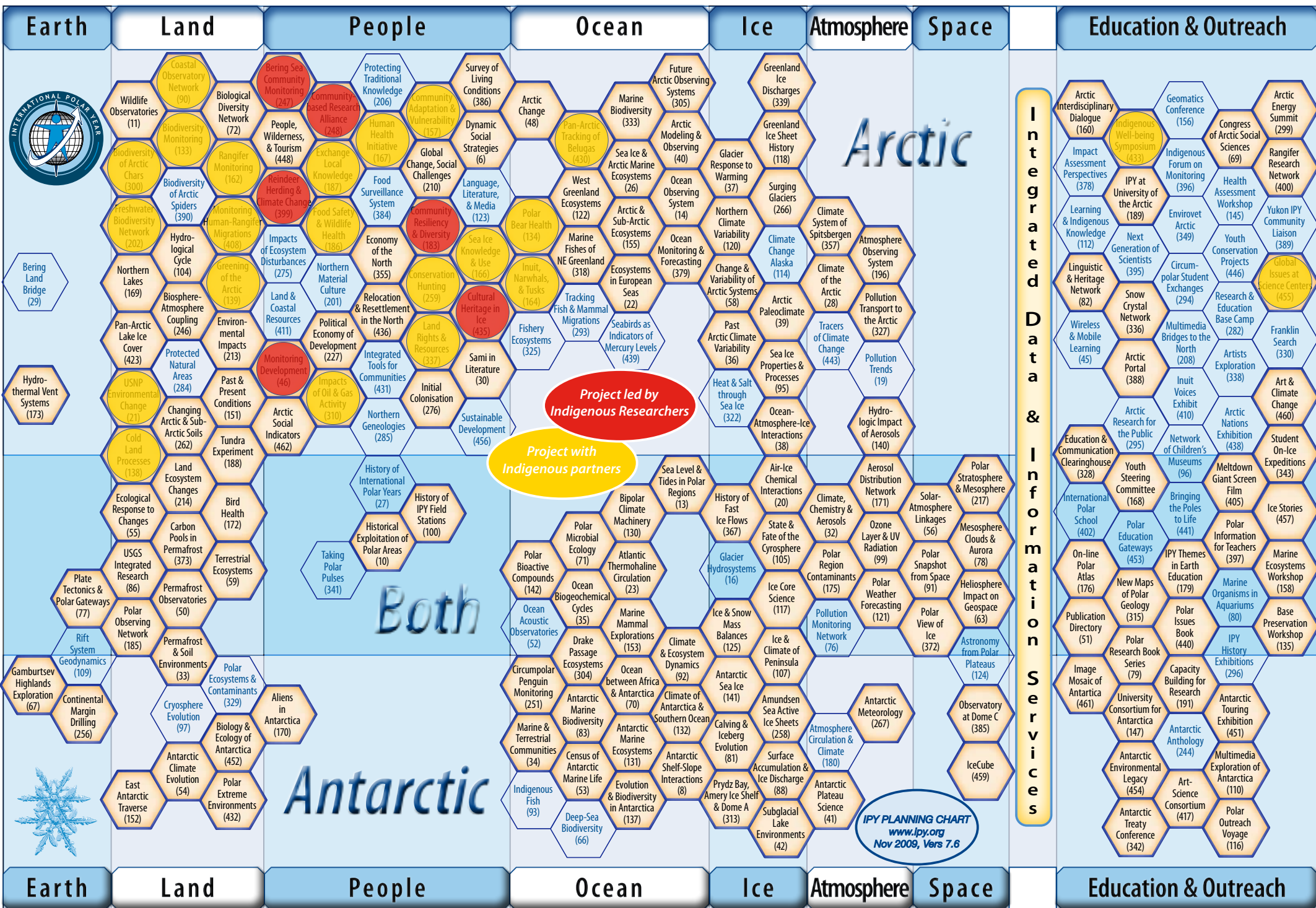


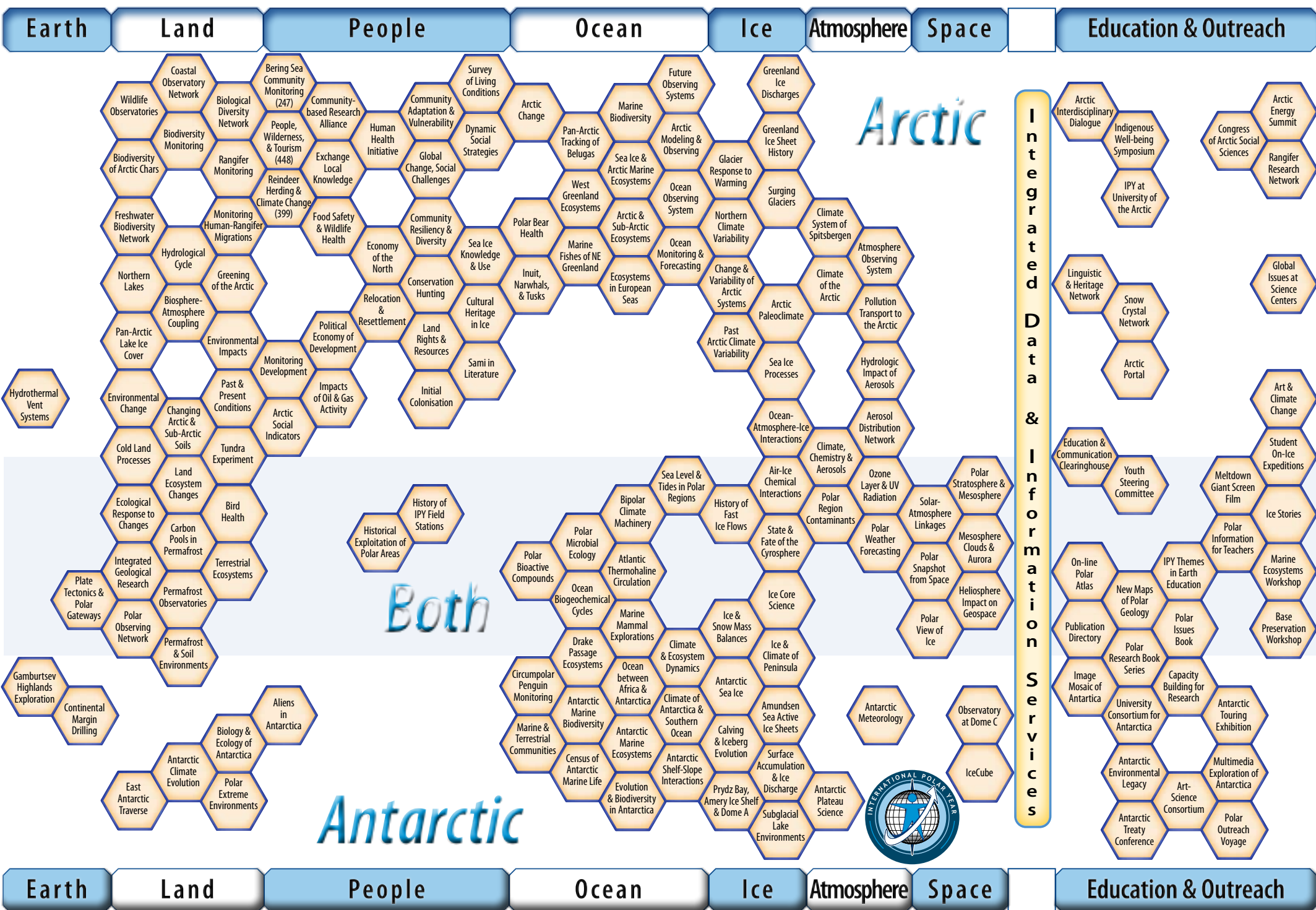
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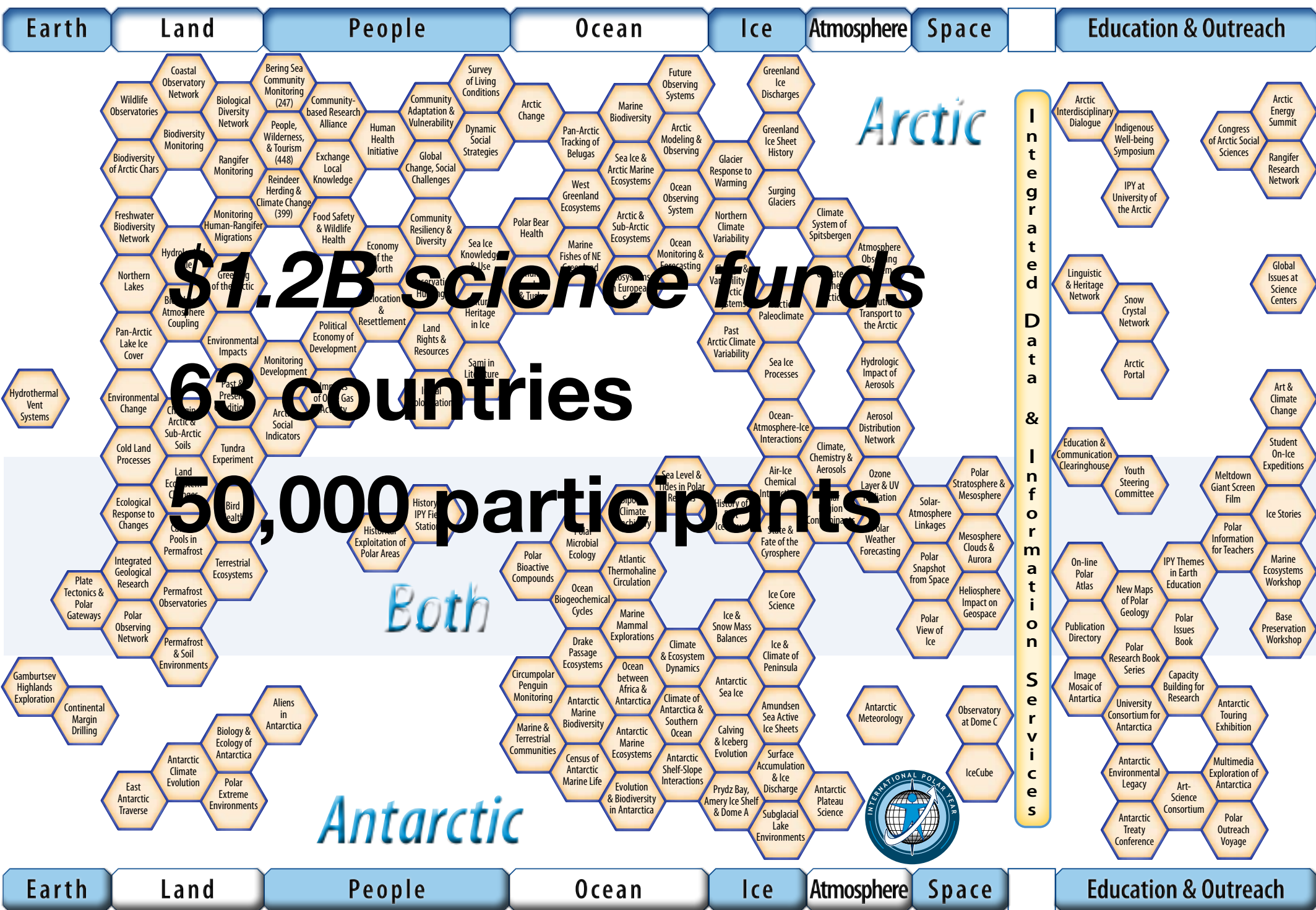
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Meeting IPY Goals

Now

Future

		
	Abject failure	Wild success









INTERNATIONAL
POLAR YEAR

Meeting IPY Goals

Now

Future

Advance polar knowledge	  	  















INTERNATIONAL
POLAR YEAR

Meeting IPY Goals

Now

Future

Advance polar knowledge	  	  
Enhance facilities & infrastructure	  	  









INTERNATIONAL
POLAR YEAR

Meeting IPY Goals

Now

Future

Advance polar knowledge		
Enhance facilities & infrastructure		
Inspire next generation(s)		



























INTERNATIONAL
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Meeting IPY Goals

Now

Future

Advance polar knowledge	  	  
Enhance facilities & infrastructure	  	  
Inspire next generation(s)	  	  
Attract public interest	  	  













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Meeting IPY Goals

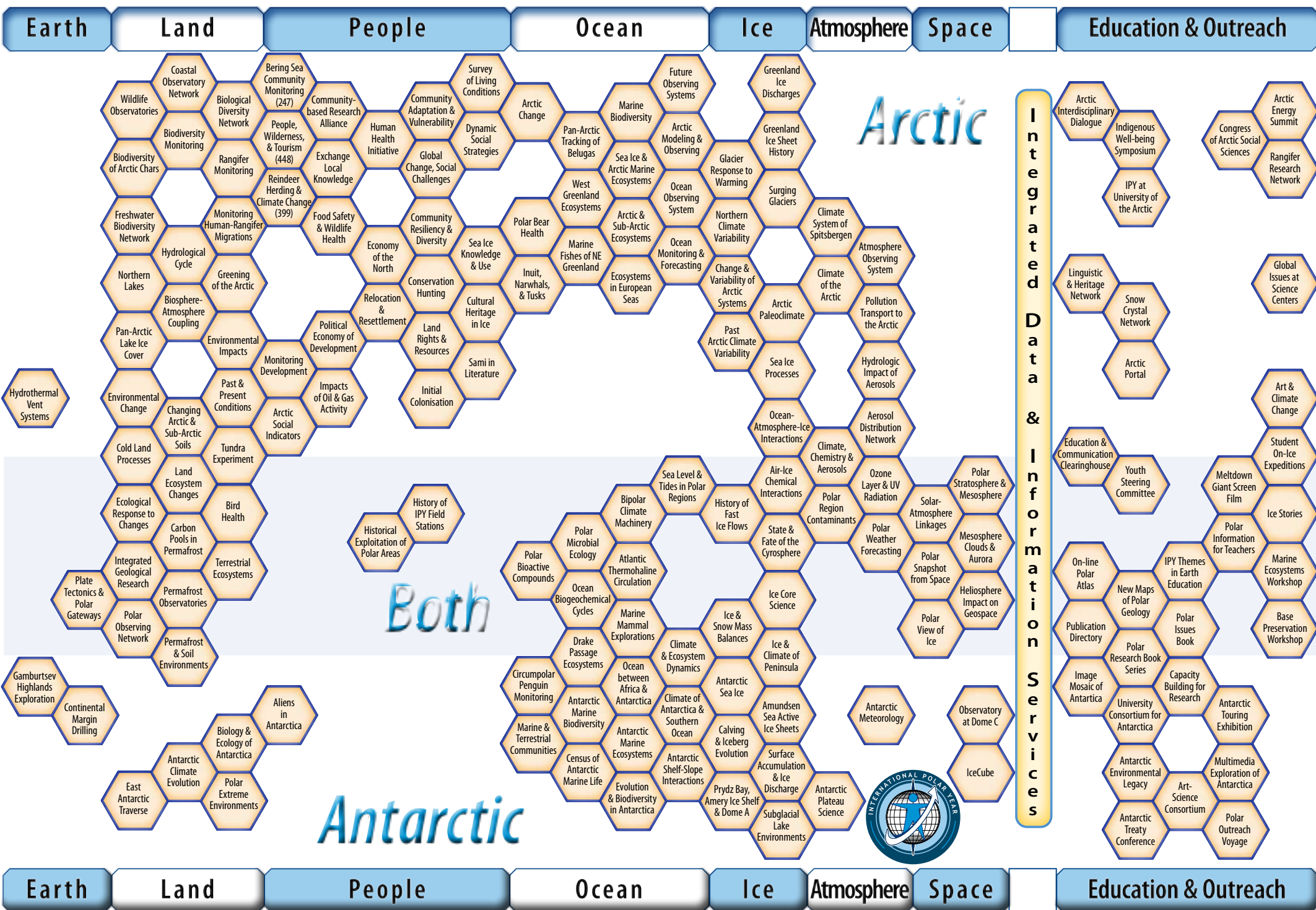
Now

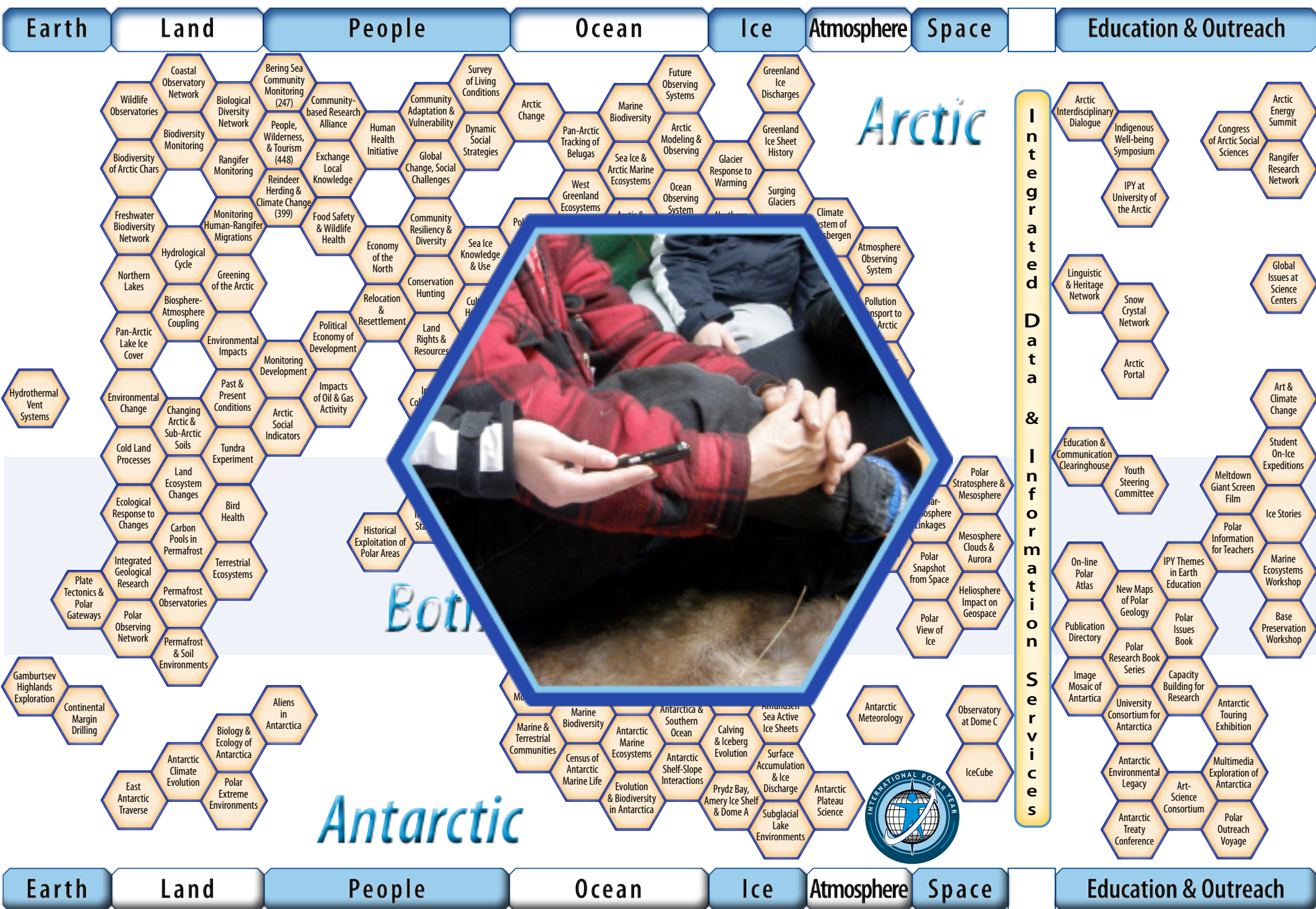
Future

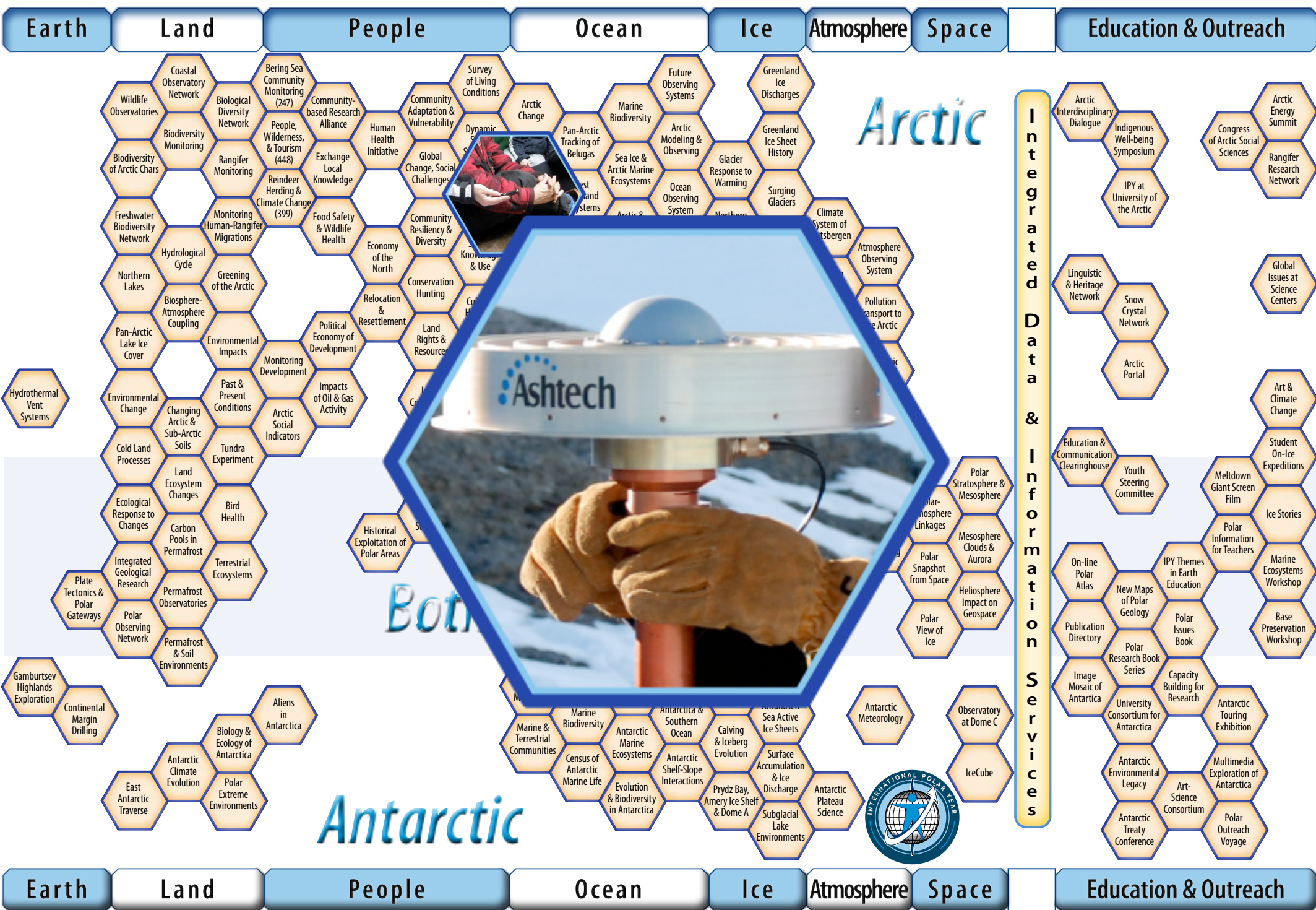
Advance polar knowledge		
Enhance facilities & infrastructure		
Inspire next generation(s)		
Attract public interest		
Integrated & accessible data		



INTERNATIONAL
POLAR YEAR

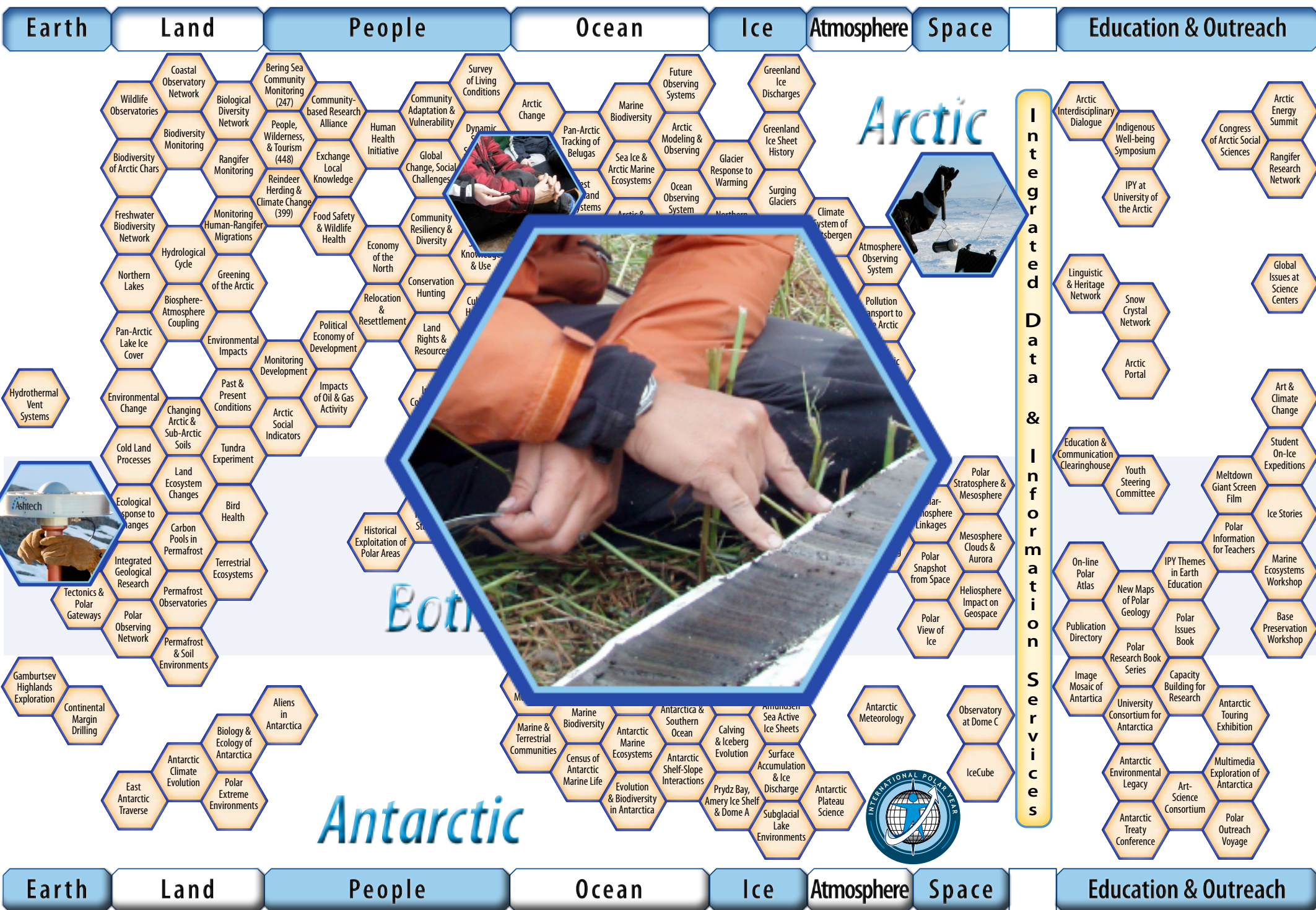


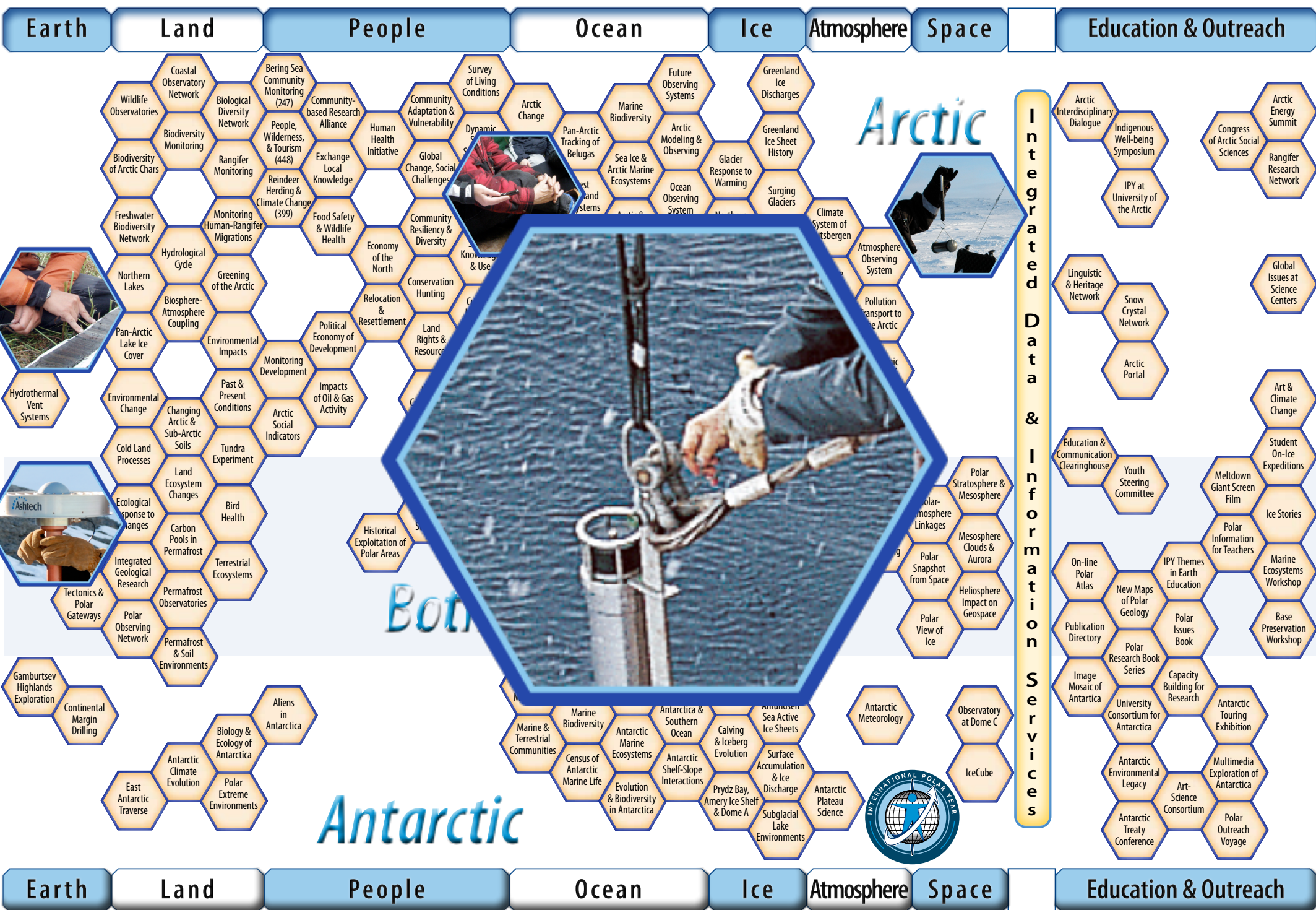






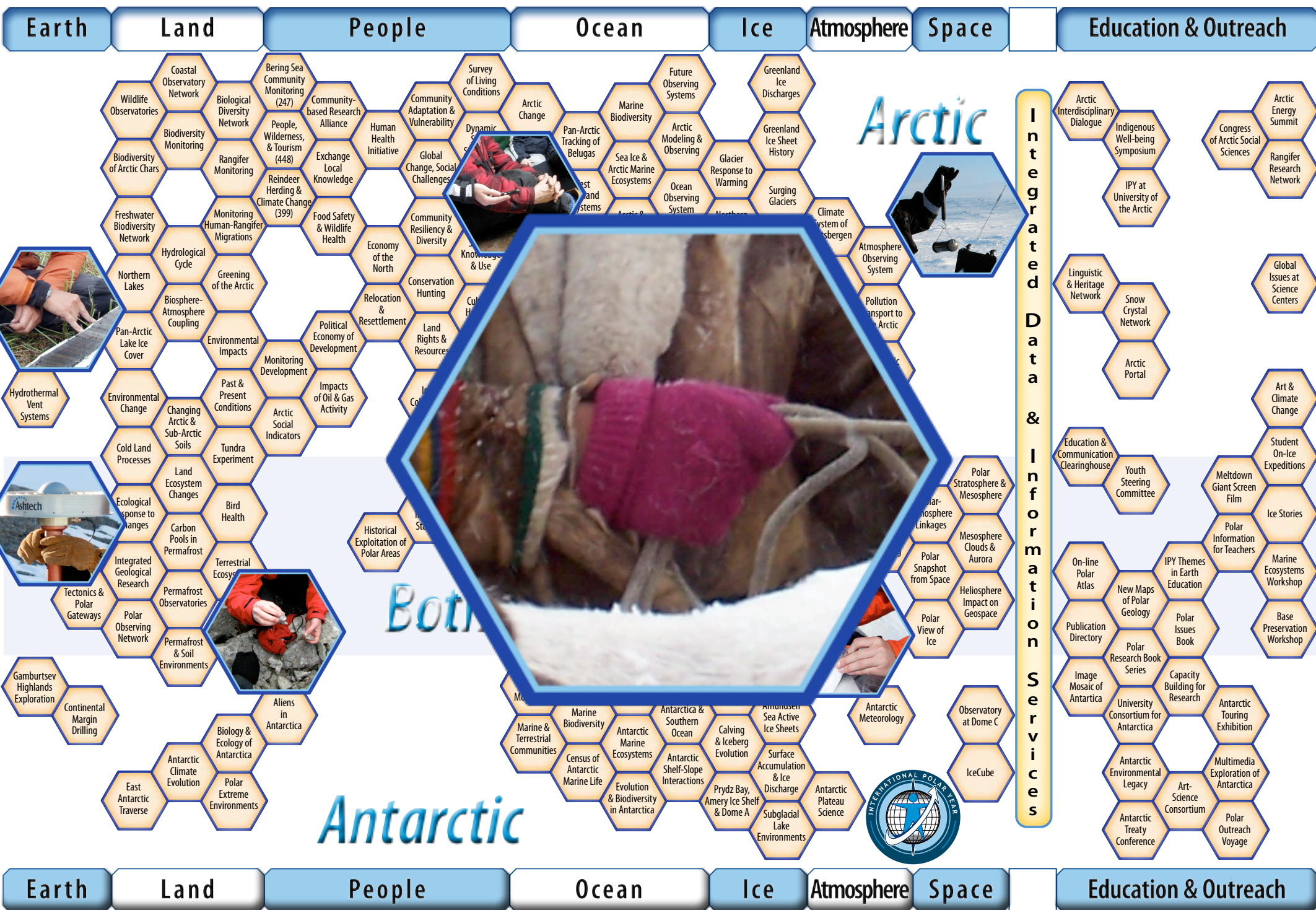










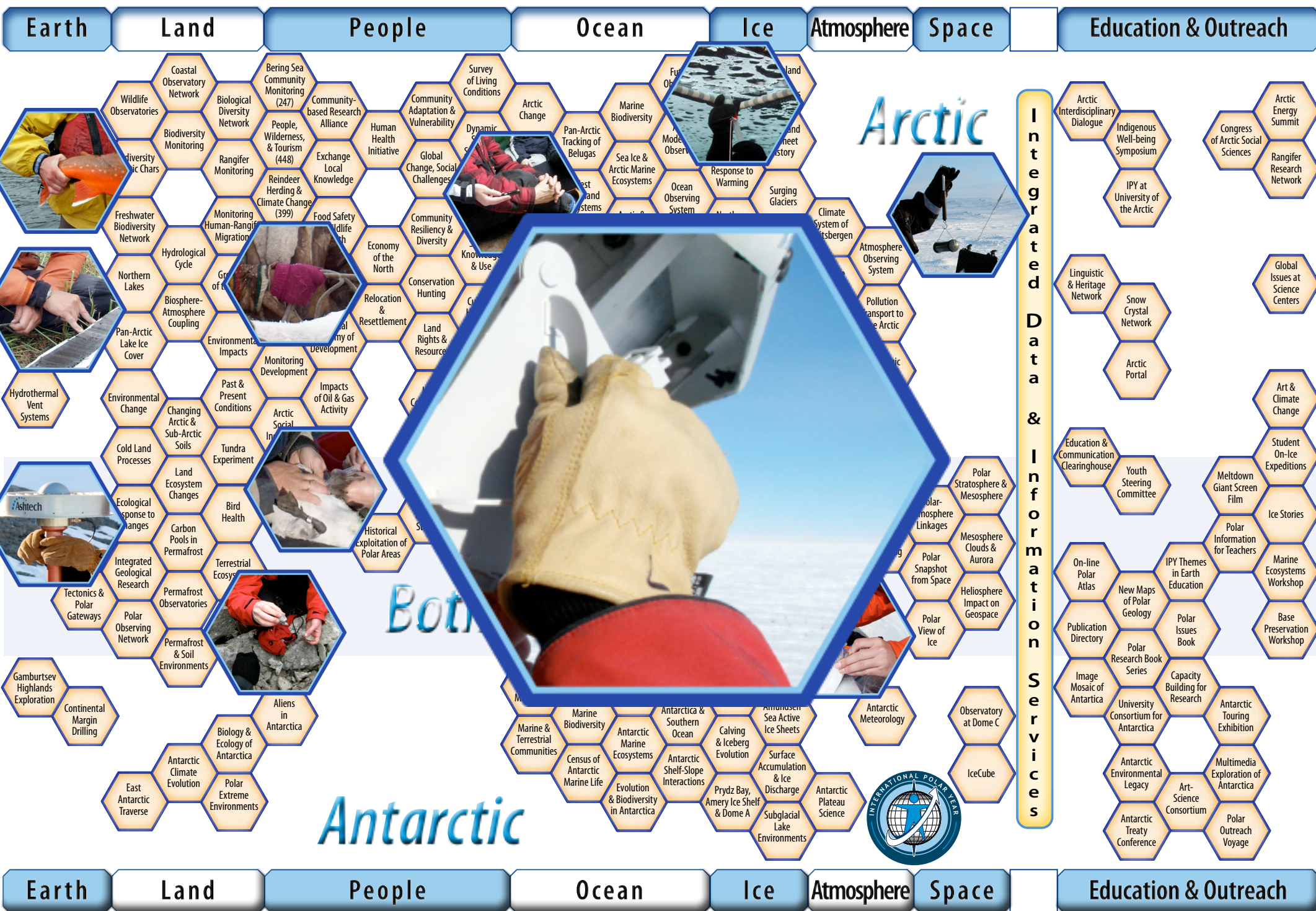




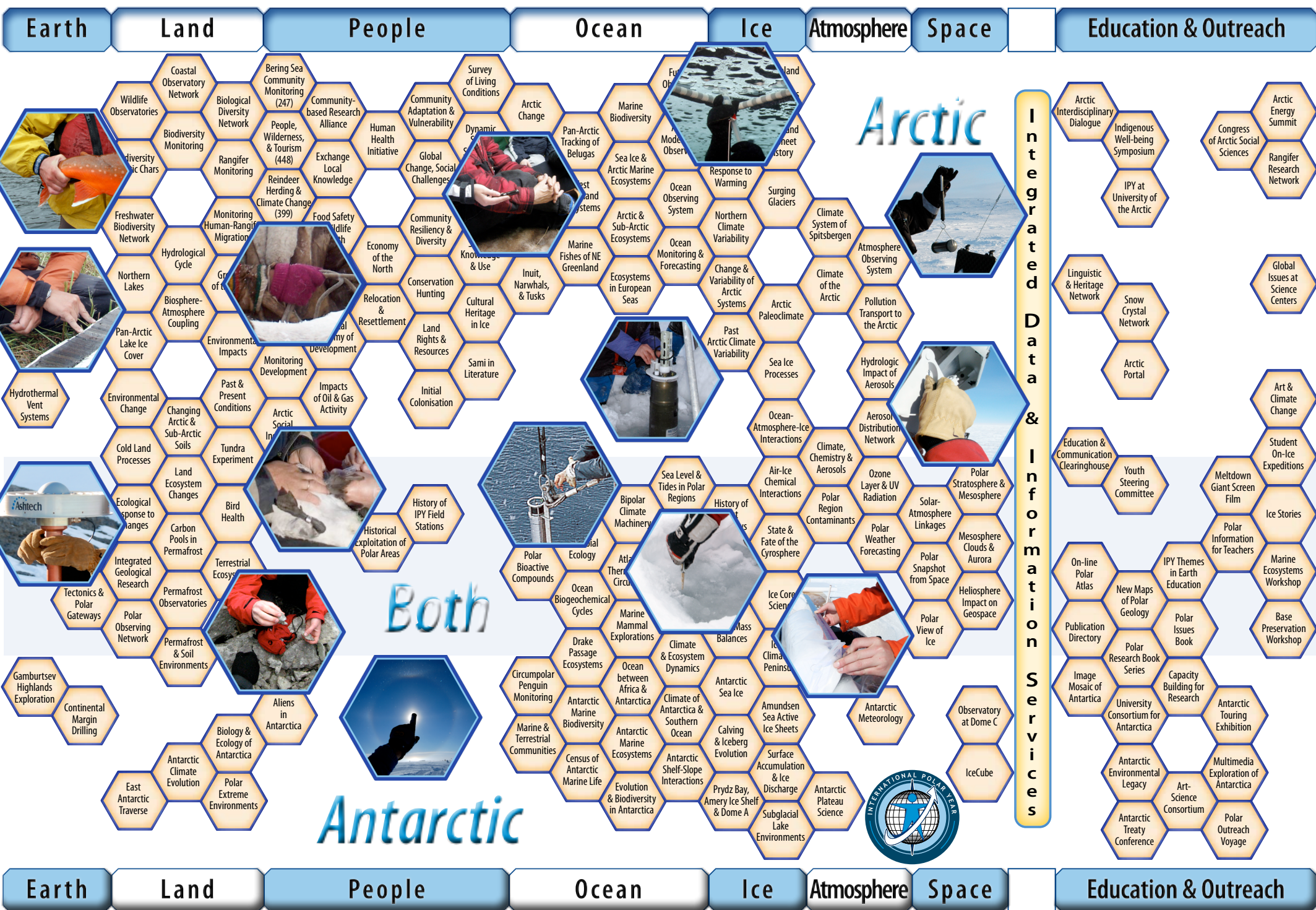








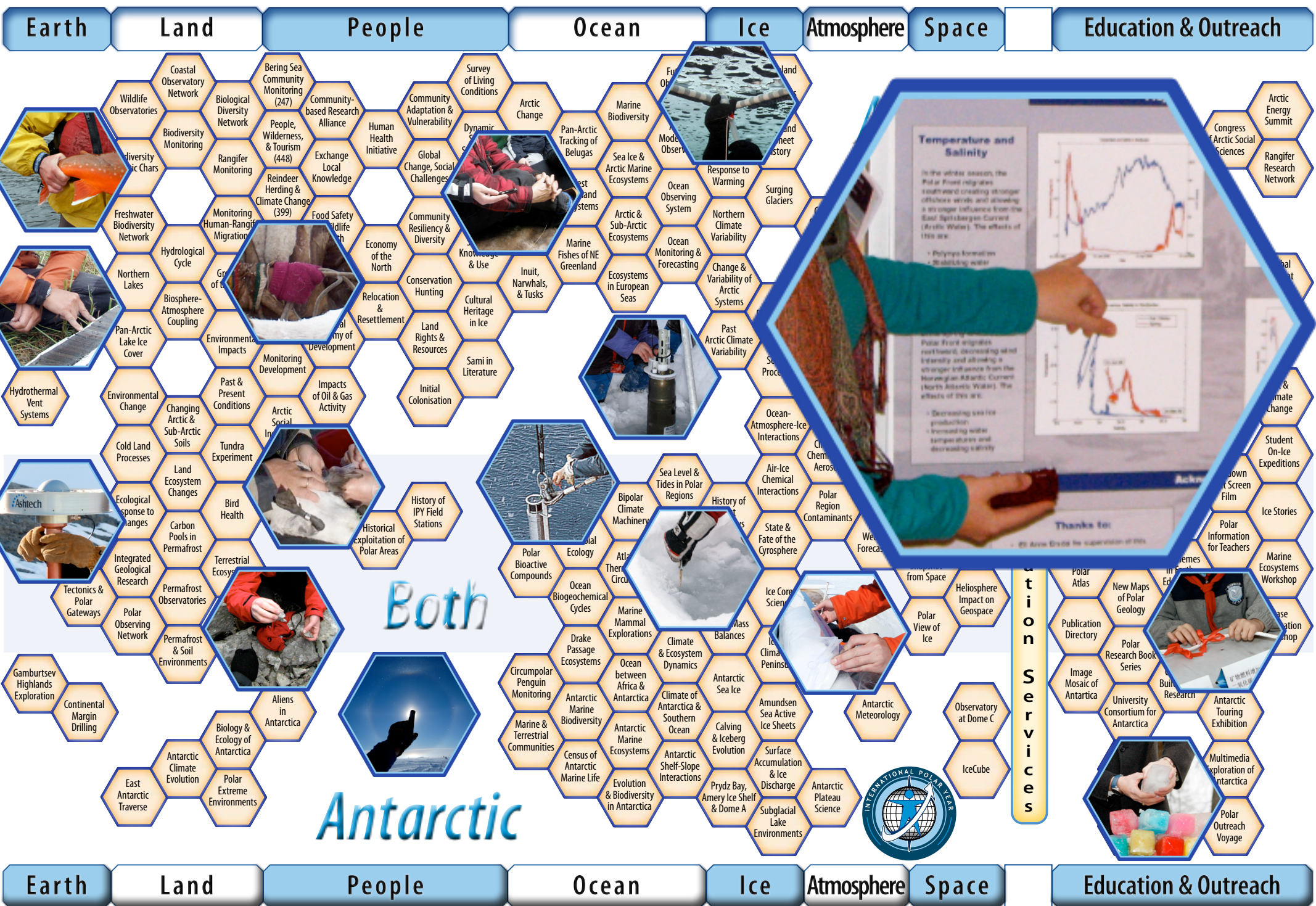




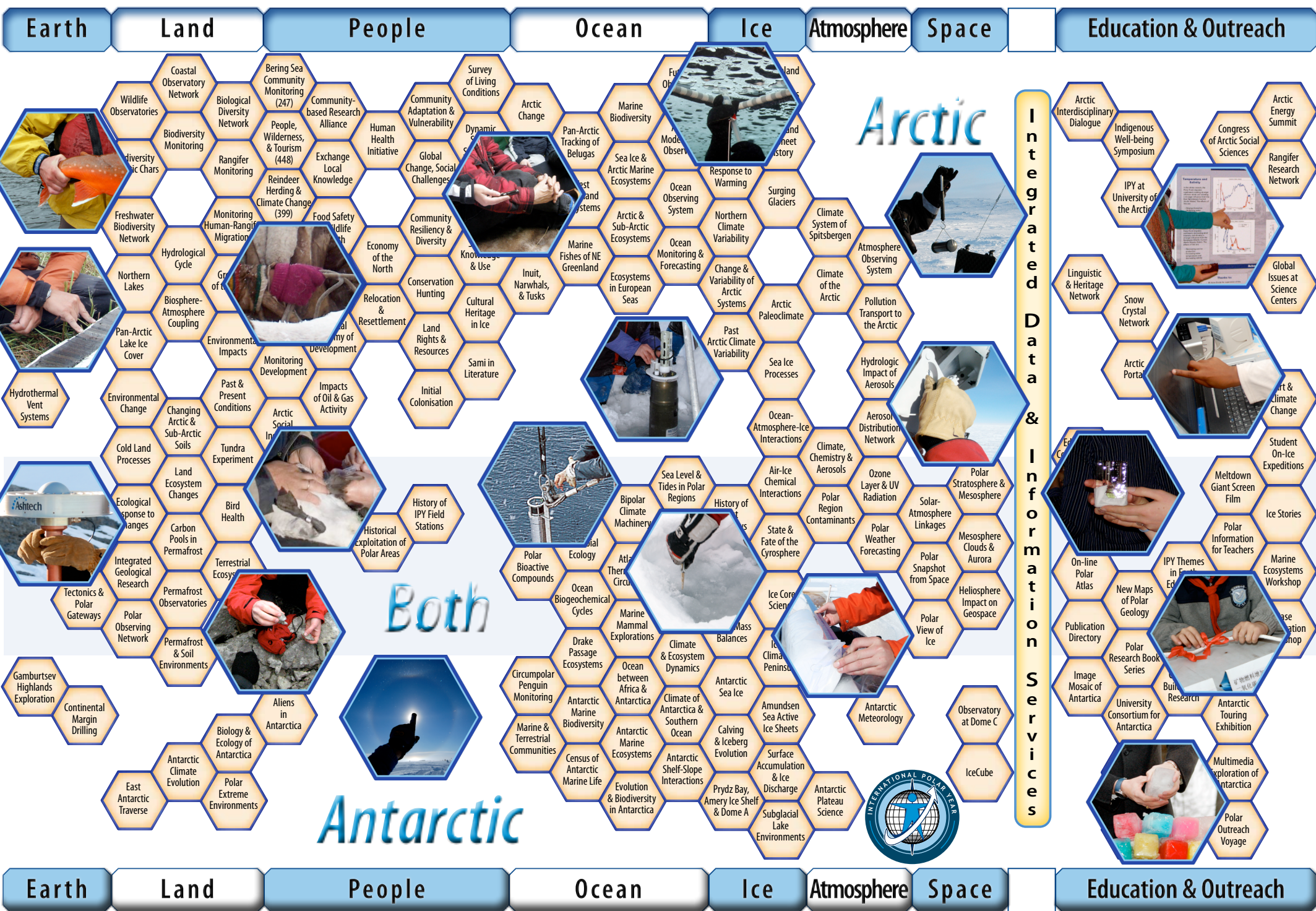


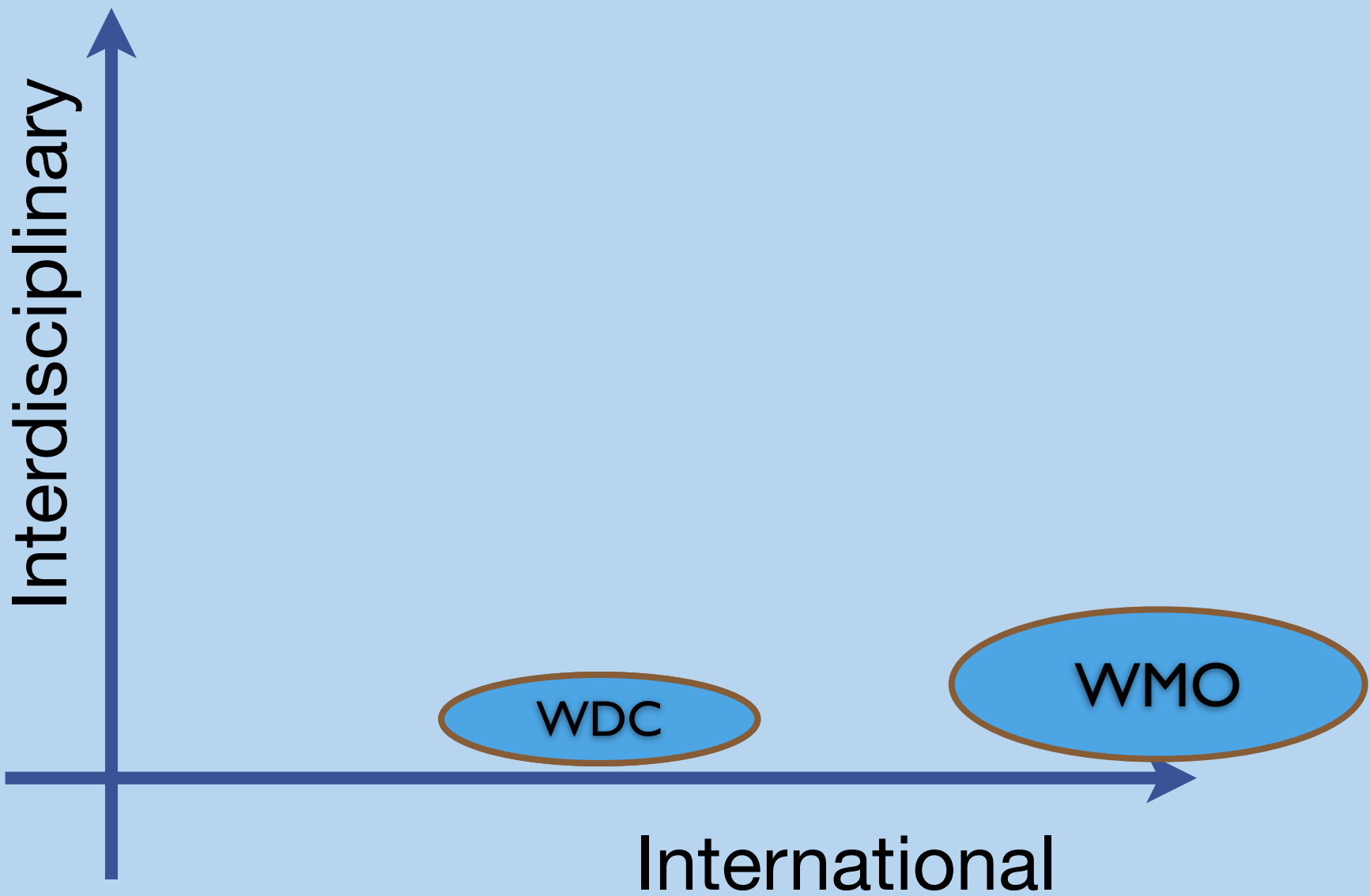


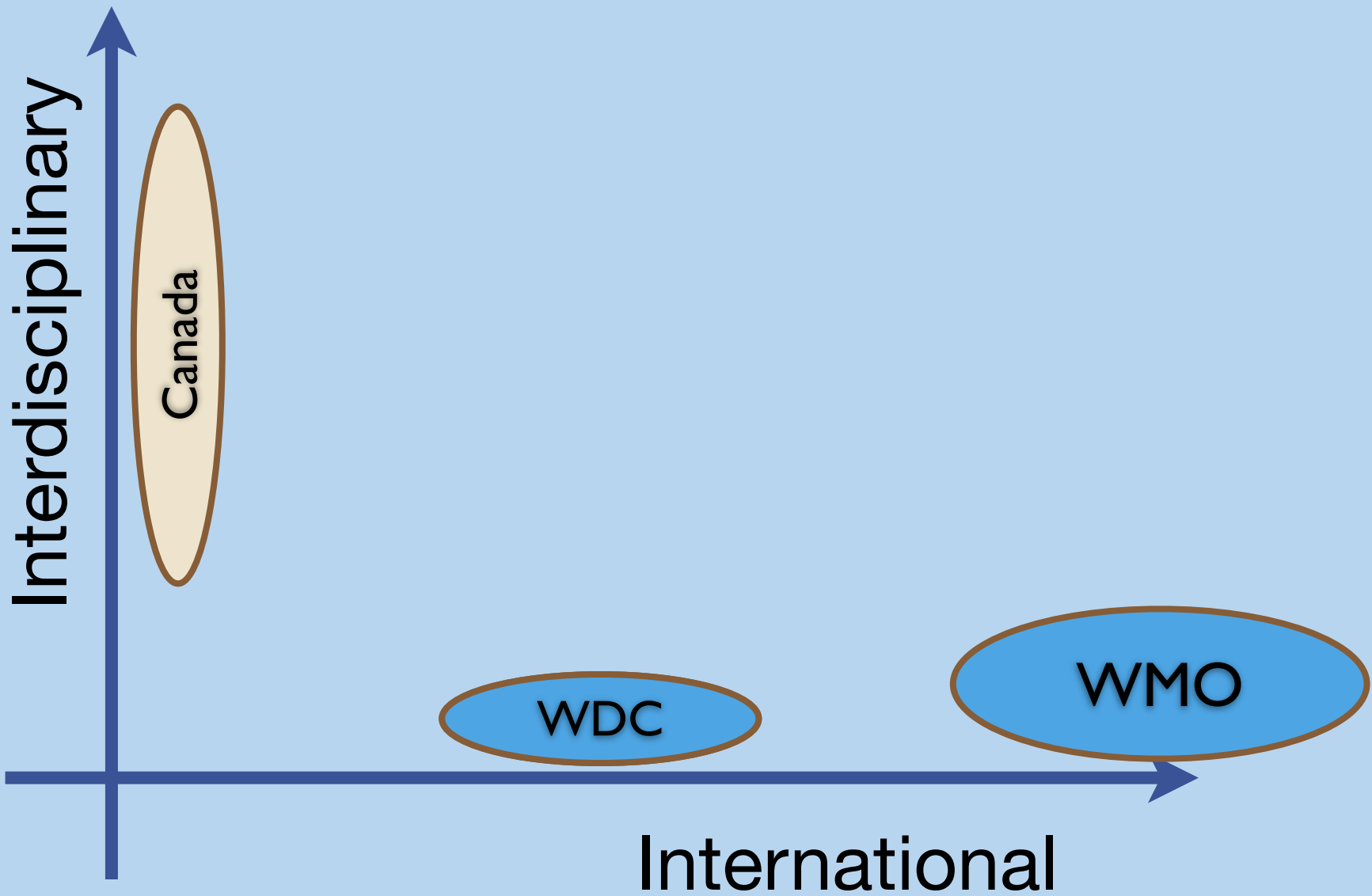


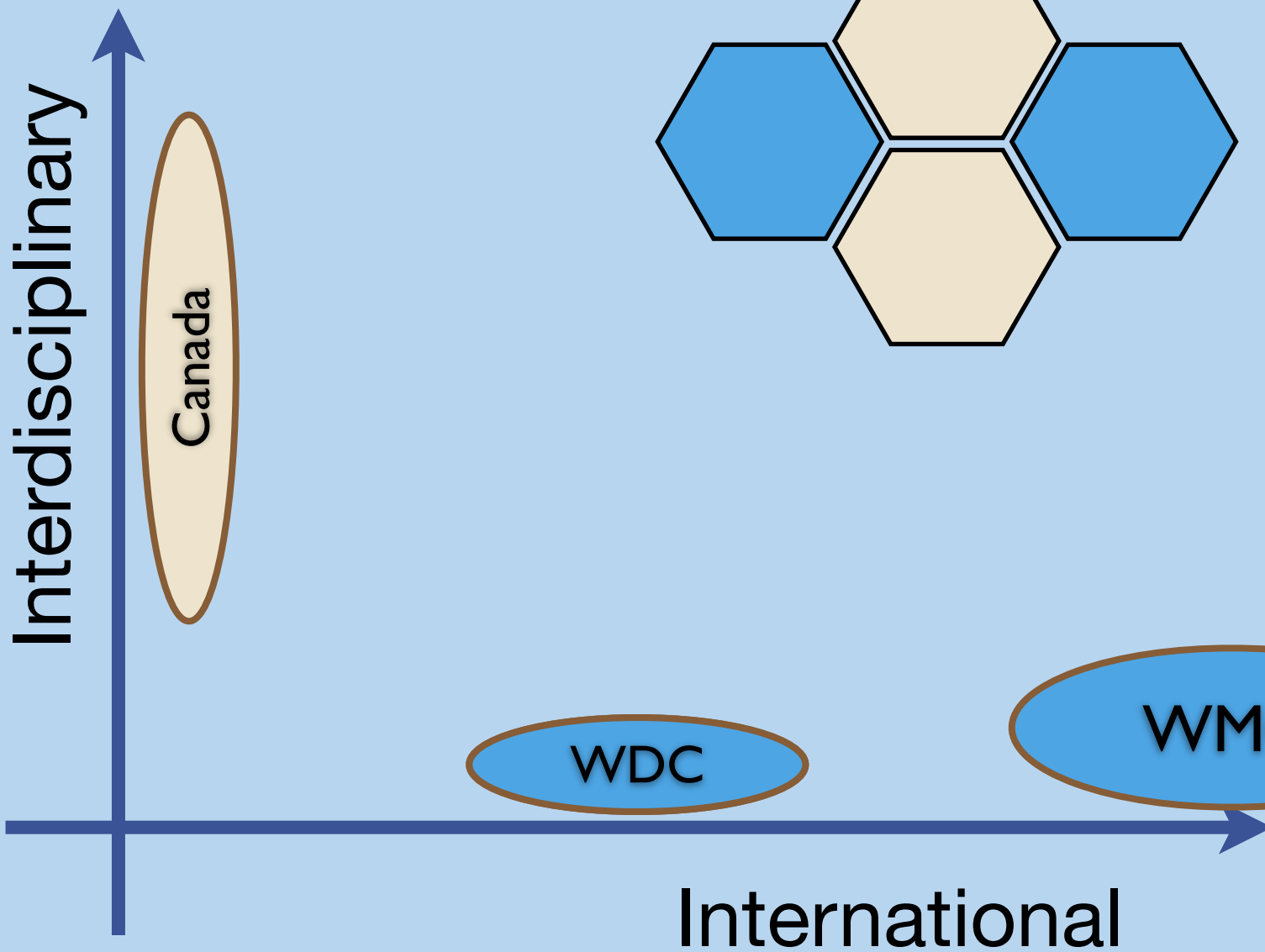




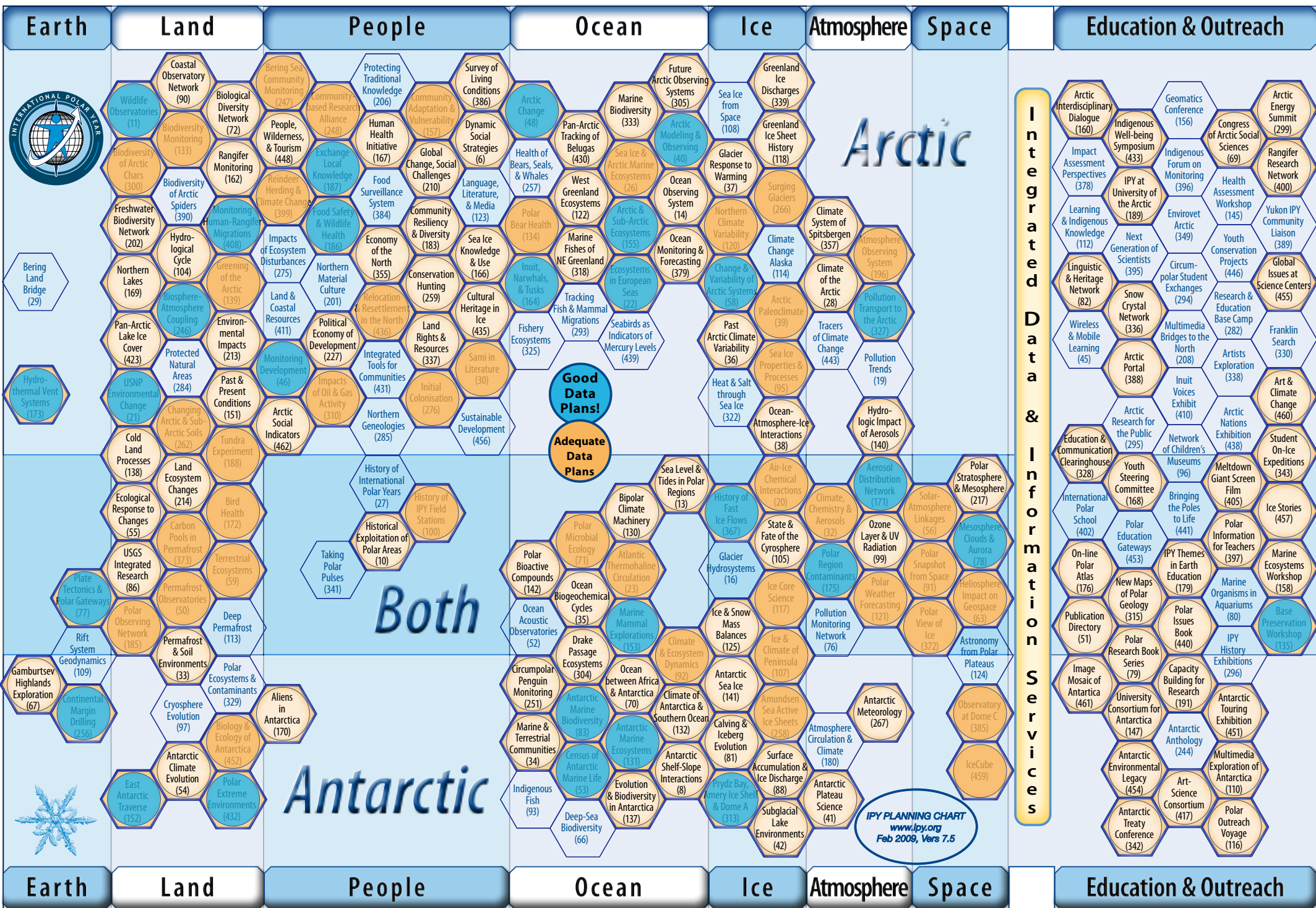








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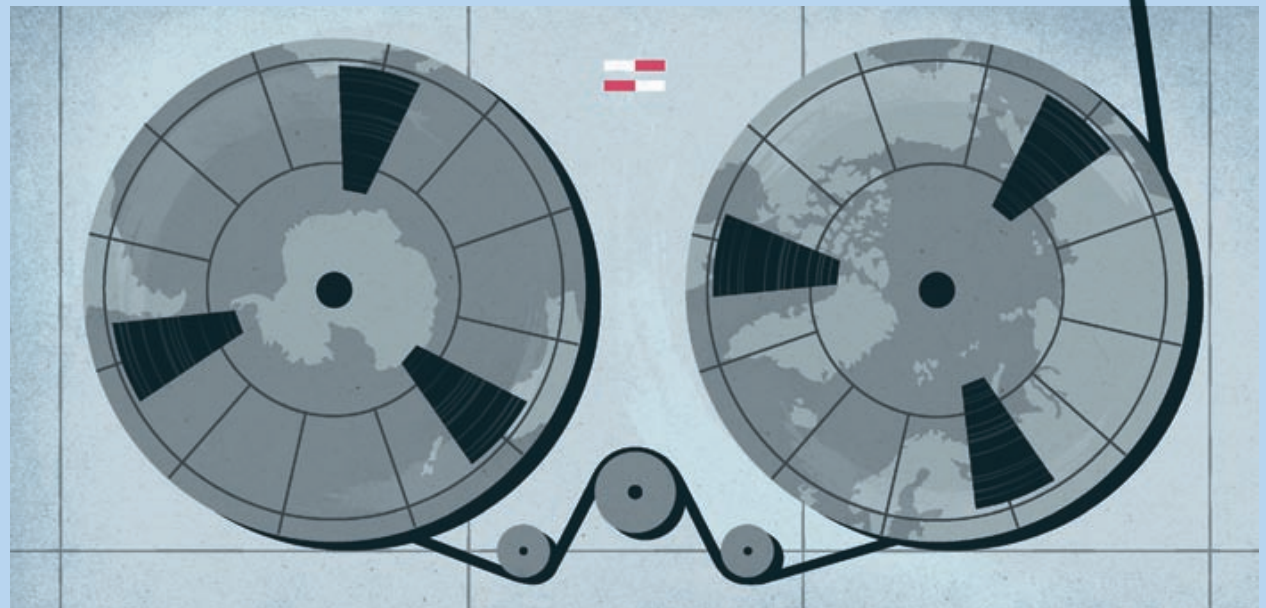


A lesson in sharing

Earth scientists need better incentives, rewards and mechanisms to achieve free and open data exchange, says David Carlson.

When the polar-research community planned the International Polar Year (IPY) of 2007–08, it embraced a revolutionary goal: to establish free, open and ready access to all data. After decades of reports with ‘data’ and combinations of ‘integrated’, ‘interoperable’ and ‘distributed’ in their titles, the IPY presented an ideal test case — interdisciplinary but limited in duration and regional in focus. Yet the community found inadequate services, almost no international support and few solutions.

We have come out of the IPY with a rich burst of data, but the information uses the jargon and units of specialities from anthropology to astronomy, referenced to everything from Cartesian coordinates to postal codes. And despite the best efforts of the IPY Data and Information Service (www.ipydis.org), we cannot say how users might discover or access IPY data five years hence. Indeed, it emerged just last week that an upcoming report from the US National Academy of Sciences in Washington DC identifies the lack of data sharing as a barrier to understanding rapid changes in polar ecosystems



JESSE LEFKOWITZ

to help solve the problem. There are now more than 50 WDCs, all of which pledged to support the latest IPY. Most struggled. Few received increased funding to respond to new or bigger IPY data streams, and the system had no mechanisms for handling the ecological or social threads of the IPY programme. The current WDCs, which have been supplemented by national and speciality data

centres in Australia, Canada, Japan, Norway, Britain and the United States have indicated their support. However, when it comes to the nitty-gritty of making data fully available, the PIC often stalls in institutional or national legal departments. The collection of PIC-labelled data is growing — but slowly.

Another effort is the *Earth System Science Data (ESSD)* journal, which I started with

standing rapid changes in polar ecosystems (see *Nature* **469**, 145; 2011).

What caused these failures? Technical impediments exist relating to formats, permissions, bandwidth and so on, but the real problem is behaviour. The Earth sciences, like the science community as a whole, lack incentives for widespread data exchange.

Long before the film *Avatar* popularized it, I learned from engineering colleagues the whimsical but useful term ‘unobtainium’ — used to describe something perfect but elusive. A perfect data-sharing system is science’s unobtainium. We must respond creatively to

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52



Earth System Science Data

The Data Publishing Journal

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ESSD - Recent Final Revised Papers

Polar baseline surface radiation measurements during the International Polar Year 2007

C. Lanconelli, M. Busetto, E. G. Dutton, G. König-Langlo, M. Maturilli, R. Sieger, V. Vitale, and T. Yamamoto
Earth Syst. Sci. Data, 3, 1-8, 2011

[Abstract](#) [Final Revised Paper](#) (PDF, 1048 KB) [Discussion Paper](#) (ESSDD)

A consistent data set of Antarctic ice sheet topography, cavity geometry, and global bathymetry

R. Timmermann, A. Le Brocq, T. Deen, E. Domack, P. Dutrieux, B. Galton-Fenzi, H. Hellmer, A. Humm, A. Jenkins, A. Lambrecht, K. Makinson, F. Niederjasper, F. Nitsche, O. A. Nøst, L. H. Smedsrud, and J. Willebrand
Earth Syst. Sci. Data, 2, 261-273, 2010

[Abstract](#) [Final Revised Paper](#) (PDF, 2583 KB) [Discussion Paper](#) (ESSDD)

An improved Antarctic dataset for high resolution numerical ice sheet models (ALBMAP v2.0)

A. M. Le Brocq, A. J. Payne, and A. Vieli
Earth Syst. Sci. Data, 2, 247-260, 2010

[Abstract](#) [Final Revised Paper](#) (PDF, 11880 KB) [Discussion Paper](#) (ESSDD)

NORPERM, the Norwegian Permafrost Database – a TSP NORWAY IPY legacy

H. Juliussen, H. H. Christiansen, G. S. Strand, S. Iversen, K. Midttømme, and J. S. Rønning
Earth Syst. Sci. Data, 2, 235-246, 2010

[Abstract](#) [Final Revised Paper](#) (PDF, 6427 KB) [Discussion Paper](#) (ESSDD)



Data are the common wealth of humanity — *Adama Samassekou*
Convener of the UN World Summit on the Information Society

About IPY

Overview of PIC

Who is Building PIC

Ethics and Norms of Data Sharing

PIC LAUNCH - 8th June

PIC Badging

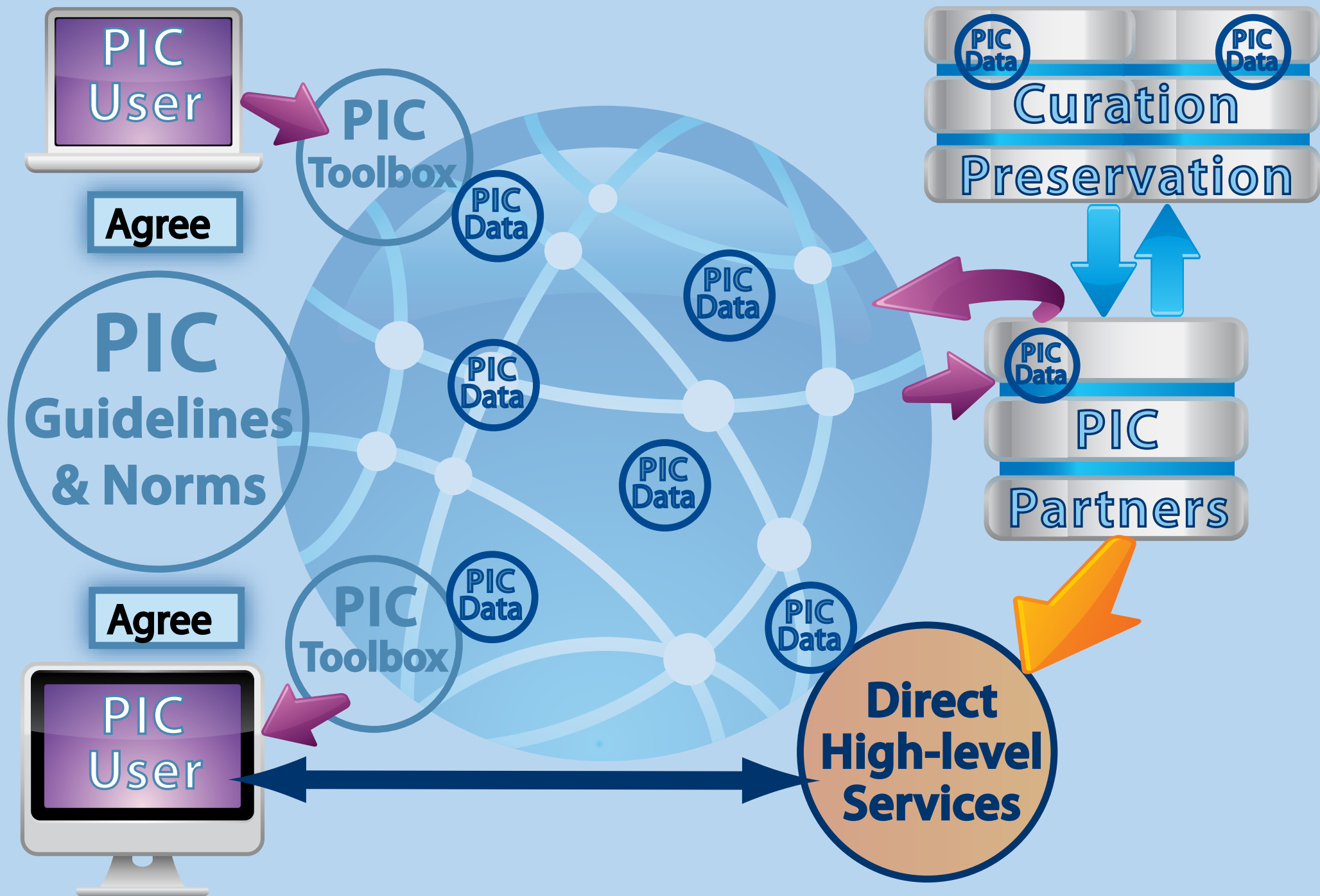
Welcome to the Polar Information Commons (PIC):

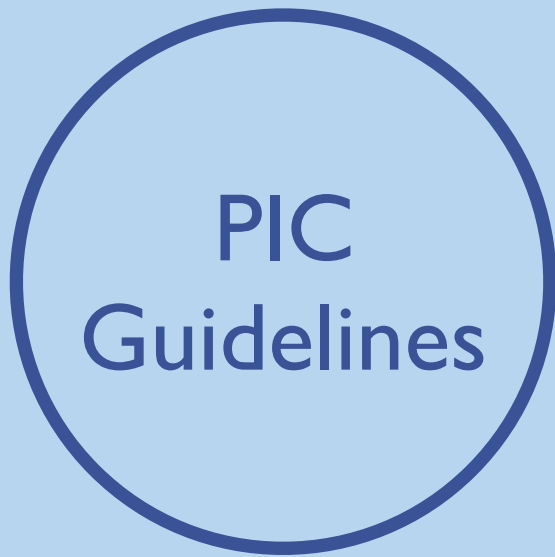
Establishing the Framework for the Long-term Stewardship of Polar Data and Information

The polar regions are changing rapidly with dramatic global effect. Wise use of resources, astute management of our environment, improved decision support, and effective international cooperation on natural resource and geopolitical issues require a deeper understanding of, and an ability to predict change and its impact. Understanding and knowledge are built on data and information, yet polar information is scattered and scarce as well as temporally and spatially sporadic.

We are inspired by the Antarctic Treaty of 1959 that established the Antarctic as a global commons to generate greater scientific understanding. Correspondingly, we assert that data and information about the polar regions are themselves "public goods" that should be shared ethically and with minimal constraint.

We envision a Polar Information Commons (PIC) as a shared virtual resource mirroring the geographic commons. The PIC would serve as an open, virtual repository for vital scientific data and information, and would





Users	Contributors
Citation, acknowledgement, co-authorship	Make data openly accessible
Acknowledge PIC	Use PIC badge
Notify of use, and of issues	Provide adequate metadata
Quality, appropriateness determined by user	Respond to inquiries
Return value-added products to PIC	Notify changes



INTERNATIONAL 2007 2008 POLAR YEAR

Polar Science - Global Impact



World
Meteorological
Organization
Weather • Climate • Water



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International Council for Science