



**What's in Adaptation?
or
Examples from the Far North**

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COAST Symposium, Isle of Arran, 22-24 Oct, 2010

What mechanisms allow for community adaptation in the face of environmental change?

What changes are community members ok with seeing in their community?

What defines a 'healthy' and sustainable community?

What tradeoffs do communities and individuals face and what are they willing to let go off?

Why do communities fail to adapt?

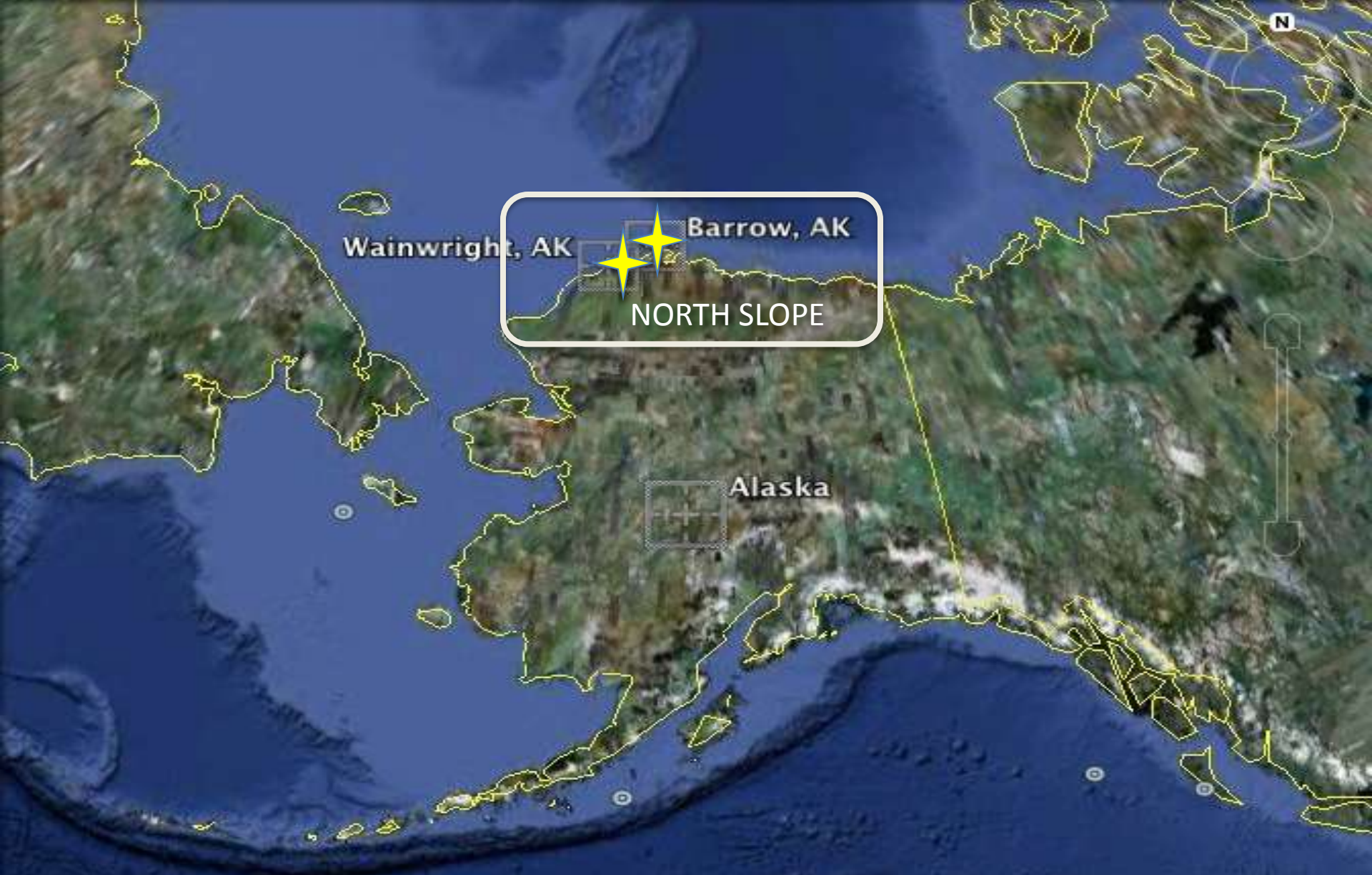
Lack of anticipation
(no prior experience, experienced before but forgotten)

Lack of problem perception
(distant managers, landscape amnesia)

No problem solving occurs
(self-absorption, "lust for power", short term hardship vs. long term gain, ingrained value/"wooden headedness")

Don't have what it takes to solve the problem
(prohibitively expensive, lack of knowledge, lack of technology)





Wainwright, AK

Barrow, AK

NORTH SLOPE

Alaska

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US Dept of State Geographer

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63°35'19.50" N 154°29'35.02" W elev 721 m Eye alt 3072.67 km









Example 1: With Students in Action

Example 1 :: With Students in Action

Public Forum in Barrow, North Slope Borough, Alaska

- ✧ Five case studies from around the globe
- ✧ Comparison to North Slope Borough
- ✧ Overarching lessons from the cases
- ✧ Scenarios – stories of plausible future of the North Slope Borough



Scenarios

- **Thin Ice** – Off shore oil and gas development has occurred in both the off-shore Chukchi and Beaufort Sea
- **Calm Seas** – Federally legislated ban on off - shore development within 25 miles of subsistence activities and communities
- **Common Horizon** - Offshore drilling is allowed under conditions negotiated with the North Slope Borough and the Alaska Eskimo Whaling Commission.



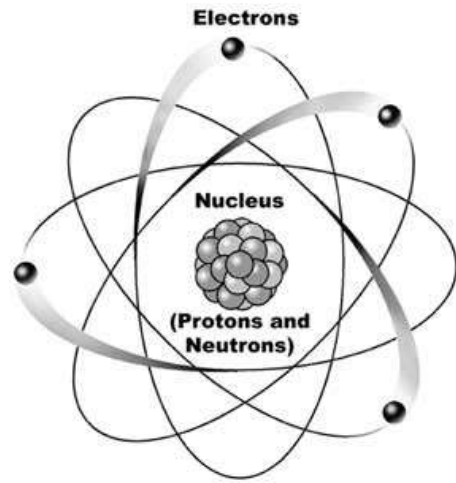
**Example 2: Participatory Research
and
How Can Models Help?**



‘Anyone who doubts the potential of computer modeling to influence public opinion and action should remember that the whole of the modern surge to ‘ecology’ ... arose because of the first large-scale computer simulations - the warning of the Club of Rome that continued profligacy with natural resources would lead to the destruction of modern society’.
Dr. Chris Evans Science Fact, 1977

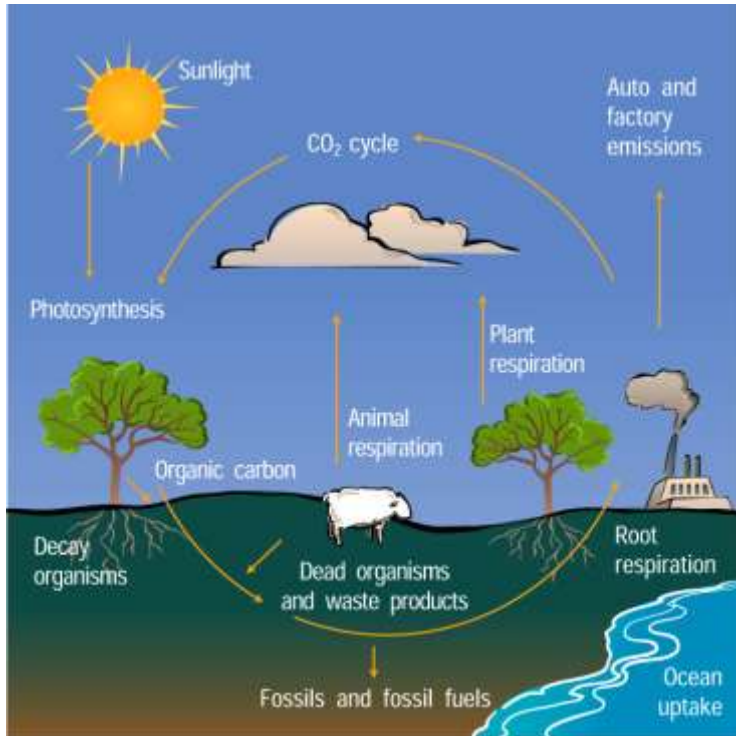
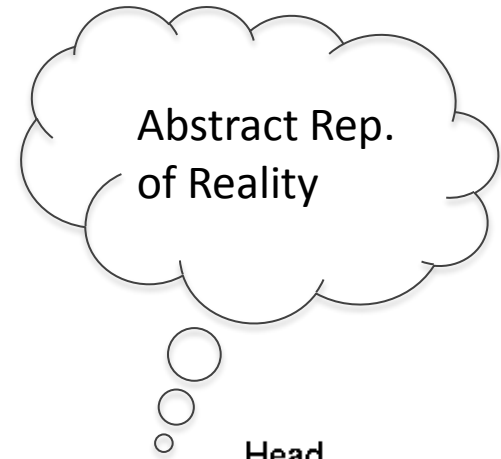
Source: Genetologic Research: The Science of First Things
by Maarten VandenEynde

Note: The Club of Rome is a global think tank and centre of innovation and initiative, was founded in April 1968 by Aurelio Peccei, an Italian industrialist, and Alexander King, a Scottish scientist.

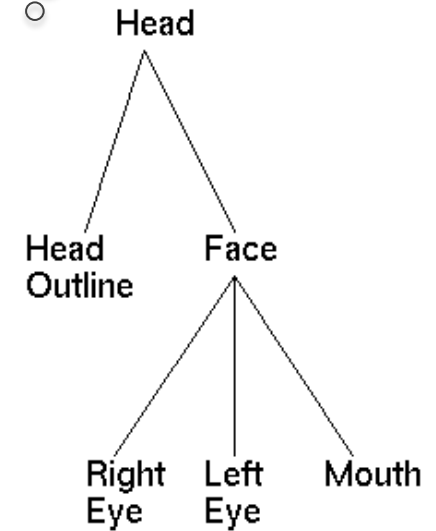
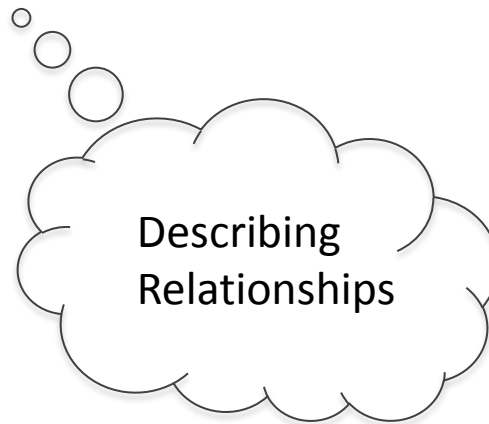


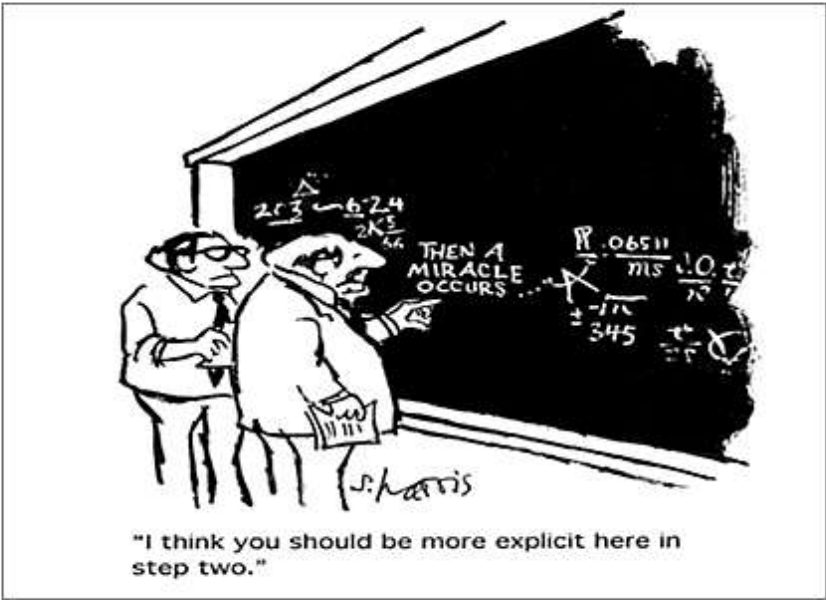
The Atom.

http://www.glenair.com/qwikconnect/vol7num4/atom_illustration.jpg



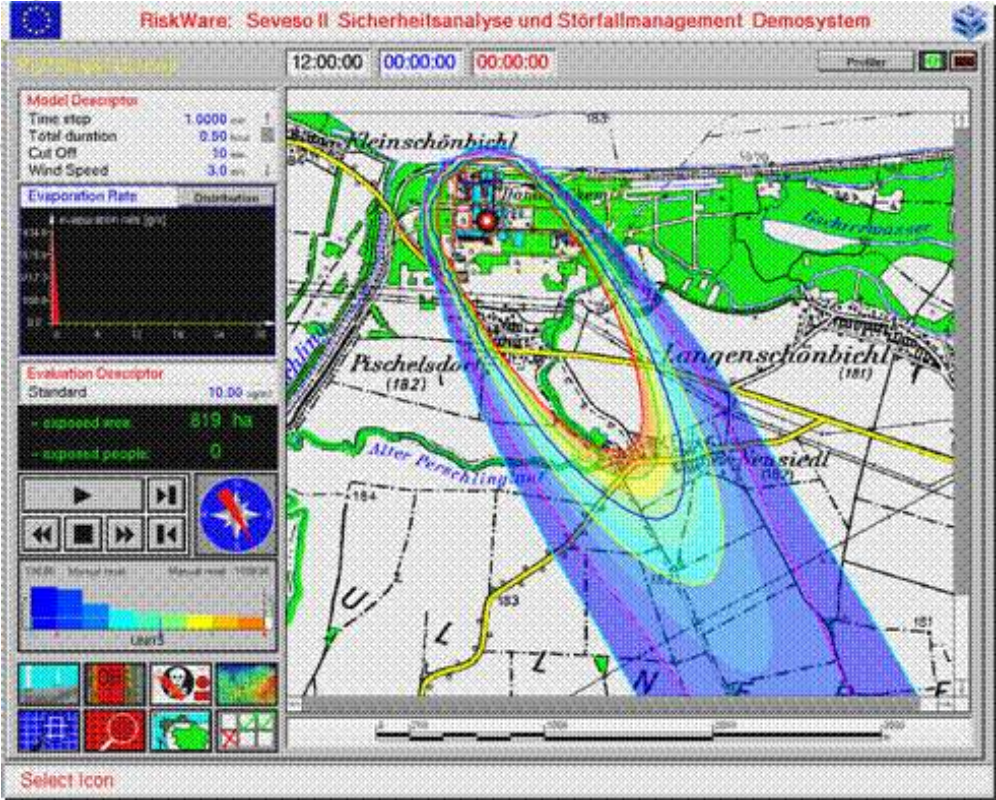
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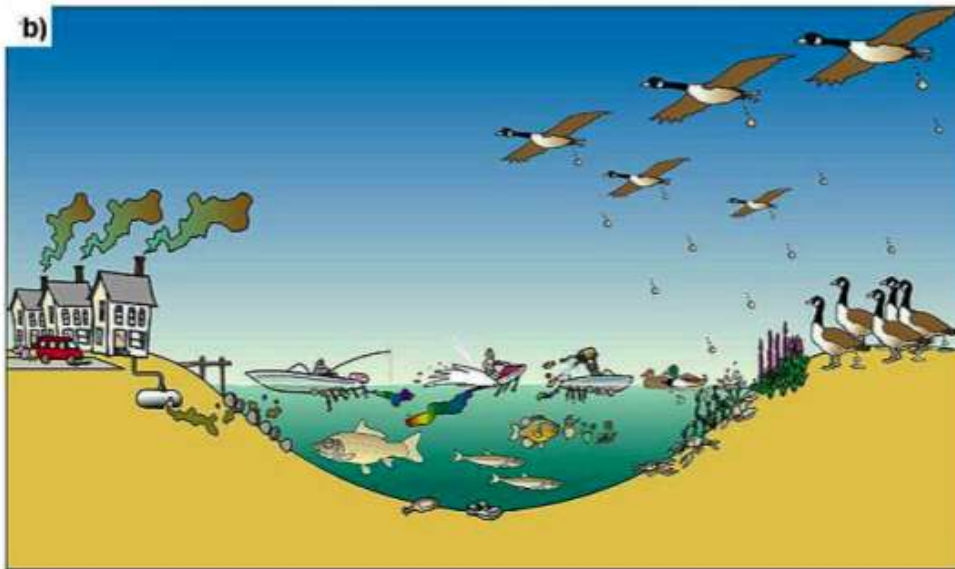
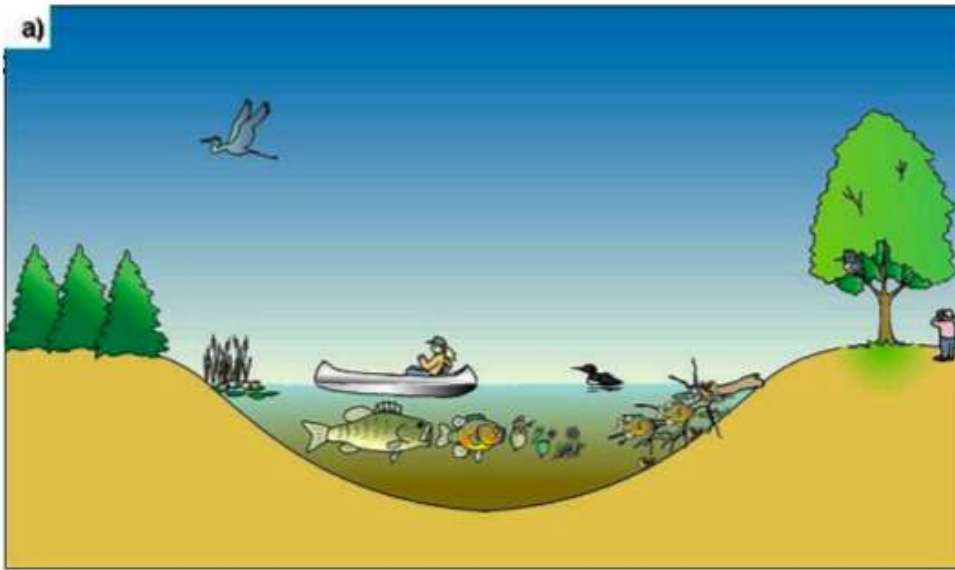


Identifying Knowledge Gaps

Discussion/
Decision
Support Tool



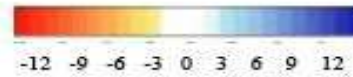
Pollution emissions from a thermal powerplant. Source: Dr. Kurt Fedra, Environmental Software & Services, at The Geospatial Resource Portal



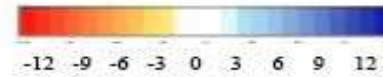
Land Use Scenarios

Source: Peterson et al. (2003), *Conservation Ecology*

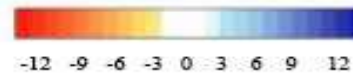
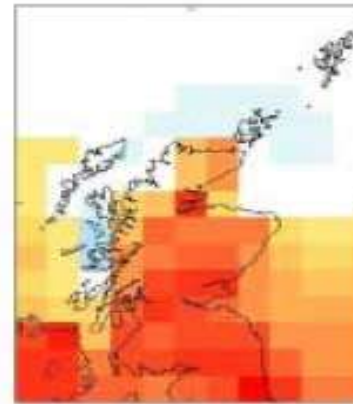
Total Precipitation Change (%)
DJF, 2020s, 50km
Medium-High Emissions



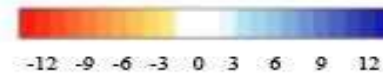
Total Precipitation Change (%)
DJF, 2020s, 25km
Medium-High Emissions



Total Precipitation change (%)
JJA, 2020s, 50km
Medium - High Emissions



Total Precipitation change (%)
JJA, 2020s, 25km
Medium - High Emissions



Climate Change Scenarios

Source: <http://www.scotland.gov.uk/Publications/2005/06/13103859/39056>

Important questions to consider for participatory research:

What are benefits of my research to a partnering community?

**How can a community be equipped to deal with change
(can what I do help?)?**

Will this make people's lives better?

What will I do with information the community gives me?

How pragmatic are results/potential implications of my research?

Modeling Subsistence Harvesting



PARTNERSHIP WITH COMMUNITIES ❖ PARTICIPATORY MODEL-BUILDING ❖ USING LOCAL & SCIENTIFIC KNOWLEDGE ❖ COMMUNITIES USE THE MODEL AS THEY SEE FIT



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Gary Kofinas, UAF, BrankaValcic, SAMS
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