TEACHERS AND RESEARCHERS EXPLORING AND COLLABORATING

POLAR TREC

How to Use Real World Polar Data in a Florida Classroom

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What is PolarTREC?

- Since 2004, the Arctic Research Consortium of the United States (ARCUS), a non-profit organization, has been administrating the PolarTREC Program.

- PolarTREC is professional development for K-12 teachers. They are paired with researchers for 2-6 week research experiences in the polar regions.

- Over 150 teachers from around the United States have joined scientists in the Arctic and Antarctica to learn about science, the polar regions, and to share what they have learned with their students and communities.

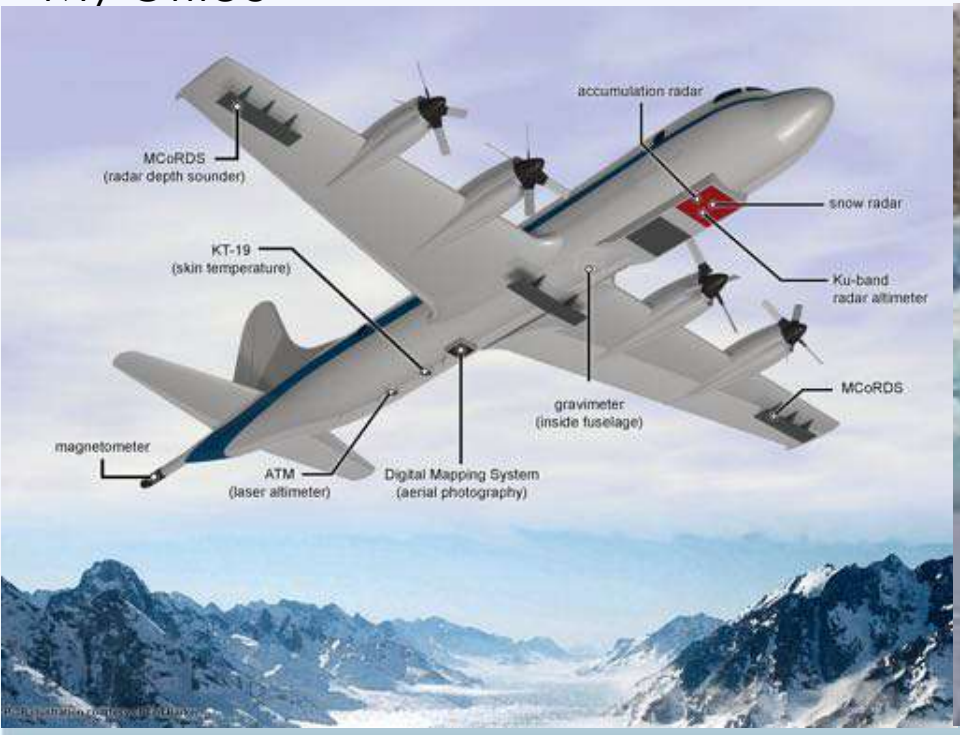
ARCUS
ARCTIC RESEARCH CONSORTIUM OF THE UNITED STATES

25 Years of Connecting Arctic Research
www.arcus.org

NASA's Operation Ice Bridge 2017

- Welcome to Greenland
- Researcher: John Woods and Operation IceBridge Arctic Campaign Spring 2017

My Office



Measuring Ice and Snow

- Largest airborne survey of Earth's polar ice regions ever flown!
- Yields crowd source data on Arctic and Antarctic Ice Sheets, Ice Shelves, and Sea Ice

How Teachers Can Use This

- Data archived at The National Snow and Ice Data Center
- https://nsidc.org/data/icebridge
- Site open to the public
- You Can open an account or be a guest

Dynamic Observations of the Microstructural Evolution of Firn

- Worked with Dr. Ian Baker, Professor of Engineering and Senior Associate Dean (Academic Affairs) at Dartmouth College
- Studying how the structure of ice crystals change as firn turns into ice
- Changes caused by temperature gradient and compression due to snow accumulation

Dynamic Observations of the Microstructural Evolution of Firn

http://www.summitcamp.org/site/

- Spent 3 weeks at Summit Station, Greenland
- Collected ice core samples (remote site) to a depth of 80 meters

http://maps.google.com

Dynamic Observations of the Microstructural Evolution of Firn

- Samples transported to Dartmouth
- Temperature gradient/pressure will be imposed and structure will be observed using x-ray computed micro-tomography (μCT)

Resources Available from PolarTREC Website

- http://www.polartrec.com
- PolarConnect events allow real time video conferencing with PolarTREC teachers
- Participant's journals that document field work
- Lesson Plans available covering a wide range of topics

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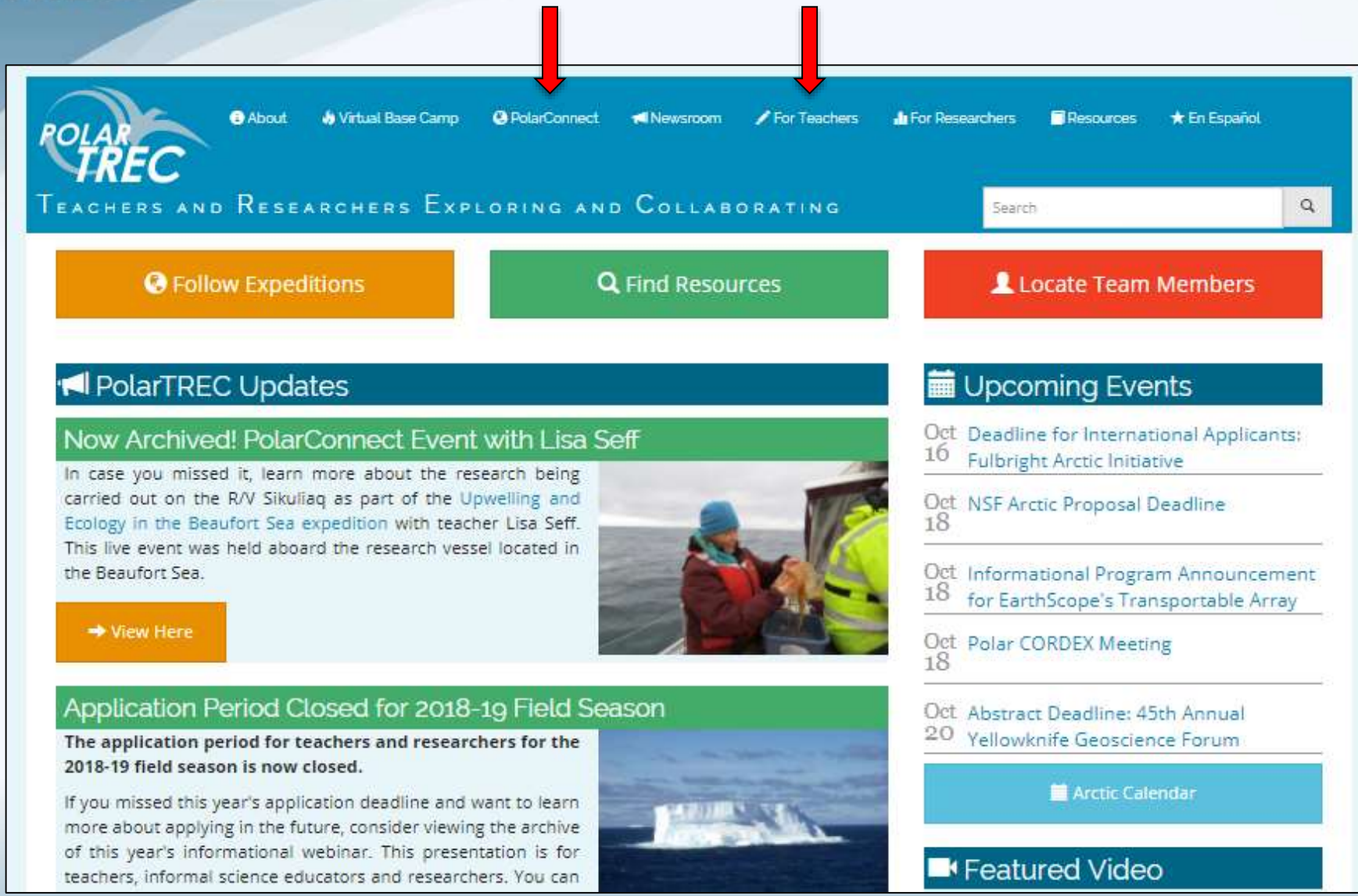


Sample Lessons

- Land Ice, Sea Ice and Sea Level Rise – Adeena

- Ice Cores: A Cool Way to Study the Past – Steve

Try them!

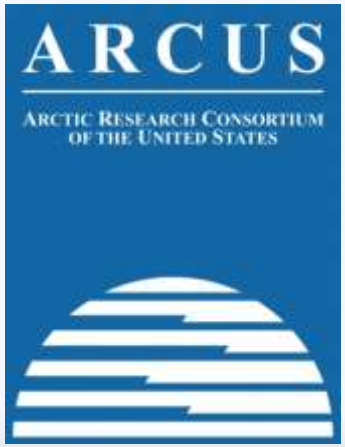
- Trying the lesson

Column 1: Age (thousand years before present)
Column 2: Accumulation rate (m. ice/year)

Age	Accumulation
0.144043	0.244106
0.172852	0.246155
0.20166	0.248822
0.230469	0.249856
0.259277	0.249943
0.288086	0.249348
0.316895	0.248137
0.345703	0.246449
0.374512	0.244663
0.40332	0.243783
0.432129	0.242928
0.460938	0.242702
0.489746	0.24233
0.518555	0.242347
0.547363	0.24224
0.576172	0.242056
0.604981	0.241764
0.633789	0.240684
1.64209	0.232827
1.6709	0.23092
1.69971	0.22909
1.72852	0.227613
1.75732	0.226839
1.78613	0.227184
1.81494	0.229276
1.84375	0.232074
1.87256	0.235215
1.90137	0.237659
1.93018	0.240476
1.95898	0.242551
1.98779	0.243055
2.0166	0.242107
2.04541	0.2414
2.07422	0.240748
2.10303	0.239481
2.13184	0.239228
2.16065	0.240399
2.18945	0.242701
2.21826	0.244714
2.24707	0.246742
2.27588	0.247946
2.30469	0.247801
3.31299	0.229629
3.3418	0.228996
3.37061	0.228532
3.39941	0.228887
3.42822	0.228653
3.45703	0.228894
3.48584	0.229515
3.51465	0.230348
3.54346	0.230963
3.57227	0.232332
3.60107	0.233774
3.62988	0.234926
3.65869	0.235833
3.6875	0.236974
3.71631	0.238026
3.74512	0.238434
3.77393	0.23878
3.80274	0.238878
3.83154	0.238709
3.86035	0.237975
3.88916	0.237327
3.91797	0.236126
3.94678	0.234957
3.97559	0.233812

Thank You!

Questions?



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