



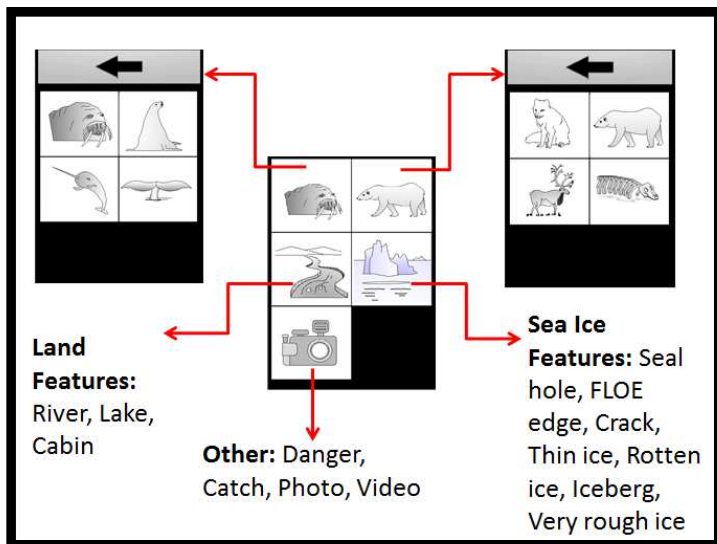
ExCiteS (Extreme Citizen Science) brings together scholars from diverse fields to develop and contribute to the guiding theories, tools and methodologies that will enable any community to start a Citizen Science project to deal with issues that concern them, regardless of their background or literacy level.

Socio-ecological resilience in the Arctic

Communities in the Arctic who depend on sea-ice for subsistence have been raising serious concerns over the unpredictability of sea-ice and related weather and wind changes (Laidler et al. 2011). Climate models are not necessarily designed to provide detailed projections of use-specific parameters, such as ice stability or the distribution of specific ice types at the local level (Eicken et al. 2009:11). Here, a technology guided by variables determined by local sea-ice users located at the interface of Traditional Ecological Knowledge (TEK) and scientific research could be of great value.

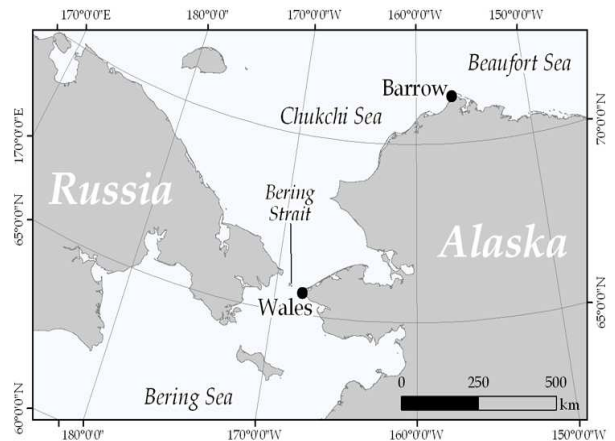
Current Development

A data collection prototype for mobile application has been developed using the Sapelli platform. Via a decision tree of pictorial icons, representing the environmental variables that hunters encounter whilst traveling on sea ice, users will be able to record and geo-locate their points of interest. This is an initial prototype which will be used as a starting point in the co-design process with the hunters involved in this project.



This new technology will ultimately represent different ontologies and interpretations of sea-ice. The information collected by the hunters could be used to produce maps useful for monitoring and prediction purposes.

Over time, such data sets could reveal spatio-temporal patterns that could help in the understanding of broader issues of interest to the climate change, sea-ice science and geophysical communities. Such interests include the validation of remote sensing data and models and the understanding of marine mammal behaviour in relation to local sea-ice use.



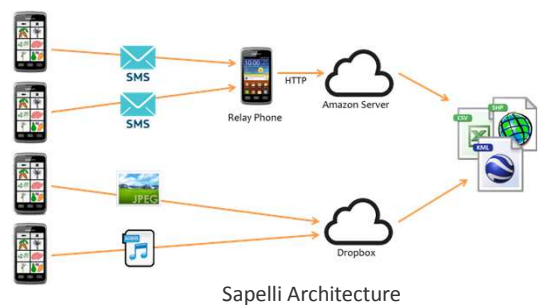
Sapelli

Sapelli is a new mobile data collection and sharing platform designed with a particular focus on non-literate and illiterate users with little or no prior ICT experience, which aims to provide indigenous people with tools that empower them to take action to protect their local environment and way of life.

Architecture

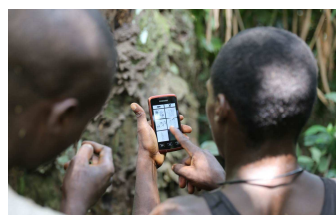
Currently the platform consists of four components:

- a data collection app for Android devices, that offers pictorial decision trees and icon-driven interfaces;
- an Android app (called the 'Relay') to forward SMS messages;
- an Android app (called the 'Launcher') to replace standard UI with a text-free app launcher;
- a cloud-hosted server component to receive and store data.



Evaluation & Future Work

While still a work in progress, the platform was tested during a fieldtrip in the Republic of the Congo, where eight sites were visited and more than 270 participants had the chance to try the application. Keep an eye on <http://sapelli.org> if you are interested!



References:

- Eicken, H., et al. 2009. Sea ice system services: A framework to help identify and meet information needs relevant for Arctic observing networks. *Arctic*, 62(2)119-136.
- Laidler, G.J., et al. 2011. Evaluating the Floe Edge Service: How well can SAR imagery address Inuit community concerns around sea ice change and travel safety? *The Canadian Geographer*, 55(1)91-107.