IceWeb Project Update

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Definition:

The IceWeb system produces spectrograms & reduced displacement plots which appear on the AVO (north) internal page, plus archives dr & spectral data & provides tools for analysing those data. It consists of ~2000 lines of Matlab code for calculations & plotting and ~2000 lines of perl/ogi code.

Recent developments:

*   Matlab version of IceWeb has been overhauled to make more use of Iceworm architecture / parameter files. Many other major design improvements.
*   New feature is web interface to change which volcanoes / stations are on IceWeb.
*   IceWeb now has its own home directory /home/iceweb.
*   Code is now 7 times more efficient than that inherited 18 months ago.
*   14 volcanoes back on IceWeb.

Future:

*   A more powerful computer (Ultra 60) will be acquired to enable IceWeb to be implemented for all seismically monitored volcanoes. Ideally this would be an Ultra 60-2-440. CPU power is the most critical parameter, by far.
*   Implement GUI interface for looking at archived data.
*   Document IceWeb as a USGS Open File Report. Other technical & online documentation needs producing too.
*   For reasons of robustness & efficiency there is now a consensus that IceWeb should be rewritten in C. Code from Jim Luetgert may provide starting point. Questions – who will do it, how long will it take, how much will it cost?
*   Recognised that keeping monitoring software running with frequent upgrades to Matlab/Unix/Iceworm requires constant support – new staff member?

Action required:

Need to decide who will be responsible for developing & supporting IceWeb long-term.

THE ICEWEB SETUP TOOL

Some of the things that can be set over the internet:
- Which volcanoes are on IceWeb
- Which stations are plotted
- Alarm thresholds for each station (or OFF)
- How frequently dr / spectrograms are computed
- Range of frequencies plotted on spectrograms
- Which dr plots are produced for each volcano

Present system...

- 10 minute & 24 hour spectrograms & mosaics
- 3 day reduced displacement plots (+ wind)
- 14 volcanoes

EXPANSION TO ALL VOLCANOES

- gif images are expensive
- Ukinrek at maximum capacity

Solutions:
1. Acquire new computer (Ultra 60-2-440?)
2. Rewrite in C; update rather than recreate gifs – Luetgert code

NEED FOR LAB BASED TOOLS

- During volcanic crisis
- For research
- For recomputing missing data (system downs)
- Zoomable waveforms

WEB PROGRAMMING IS DIFFICULT & NOT VERY POWERFUL

ICEWORM ISSUES

1. Lack of documentation
2. Lack of support
3. Iceworm keeps evolving

IceWeb has been delayed due to these problems
& time = money

Kent & Mitch already have too much work to do

With AVO's increased dependence on Iceworm

IS THERE A NEED FOR A NEW AVO COMPUTER GUY TO
SUPPORT AVO OPERATIONS/PROJECTS RELATED TO
ICEWORM ?

The REVOLT system

REVOLT stands for REal-time VOLcanic Tremor (Nye)

Main goals:
1. Increase efficiency & stability by replacing Matlab code with C.
2. Increase efficiency by updating rather than recreating gif images.
3. Compute dr more frequently – e.g. once per minute – useful for monitoring, research & alarms (use time domain filter – would need to change dr from max to rms)
4. Implement an orb2db which runs for volcano stations only, which archives dr data (not waveform data)
5. Database spectral data
6. Use distance & calibration data from Iceworm (not possible at present)
7. Web plots updated at same frequency as now
8. Improved tools for analysing archived data – tktcl?

Who will do it? How long will it take?