SKATE

A web-based seismogram digitization tool

seismo.redfish.com
Purpose and Functionality

Mass digitization. 30k processed.
Web based. No software needed.
SKATE is looking for a new home

- Leave on AWS
- Migrate to your own cluster.
- Skill set: - basic linux/unix skill (bash, ssh, etc.)
- - familiarity with AWS S3 and EC2
- Nodejs, mongo, python and scipy, angular1 and leaflet

● Potential Master's level thesis project
● Ongoing usefulness as a research tool
● Need to maintain and IMPROVE code.
Long Term Value

- The original image data set
- Image processing algorithms: feature detection, segment assignment (i.e. time series assignment)
- Interactive editing techniques for segment cleanup and meanline matching [using humans to augment the automated analysis] HIL
- Clever system architecture ideas that makes serving large datasets possible and efficient, like using a GIS stack to serve the data
  - serving images as map tiles at multiple levels of zoom
  - serving segments/mean lines as GIS vector data
  - using an open source browser based GIS library for rendering and interactivity
- Open source reference implementation that is based on popular packages like Leaflet, Node, Angular, Scipy, Nginx, etc.
SKATE Architecture

Input image

S3
- Images
- Thumbnails
- Metadata
- Edited Metadata

EC2
- Python pipeline
- Assignment algorithm

Web server
- Image to file
- Get assignment
- Assign

DB
- File and station data
- Node/JS
- Save edits
- Search/get files
- Assign/get assignment

End-user web browser
- Display image/metadata
- Request/get image
- Save edits
- JS

End-user web browser
- Search/get files
- Assign/get assignment
- Save edits
Last Phase I application has best outline for future development

Code there can be run on desktop to better develop pipeline parameters. Editing is not available in desktop version

Other techniques such as Frey-Dueck, Bayesian and multi-criteria decision making

github.com/retrievertech