**Stage I: Data Input Stage III: Data Analysis** Stage II: Data Processing cloud virtual machine (Microsoft Azure) statistical LiDAR/GPS Python quality LiDAR data object testing, spatial measurements checking, -attributes- dates, and temporal FTP individual glacier Matlab visualization trend analysis changes Python -methods- unit SQL / QGIS (cloud Alaska data conversion, connection accessible filtering, repository normalization, statistics to collaborators) formatting satellite data SQL / Python SQL / Python plots, tables, Relational Database (PostgreSQL/PostGIS) **ArcGIS** manuscript -data tablespreparation regional glacier **LiDAR** delineation inventory Jupyter notebook SQL / Python MS Word regional extrapolated results boundaries individual ArcPv version control (Python) glacier and distribution inventory SQL / Python SQL / Python

extrapolation, regional glacier change;

sea level estimates

elevation

maps

git / GitHub