VPS Script

**Scene 1: Picture of Grant and Nathan**

**Nathan:** Hi, I’m Nathan Qian, I’m a computer science student at the university of William and Mary

**Grant:** and I’m Grant Mercer, I’m studying Computer Science at the University of Nevada, Las Vegas. And we are the CALIPSO Cross-Cutting team

**Scene 2: View of satellite before launch**

The CALIPSO Satellite, short for Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations, provides new insight into the role that clouds and atmospheric airborne particles play in regulating the Earth’s weather, climate, and air quality. The satellite is equipped three nader-viewing instruments, one of which is called the Cloud-Aerosol Lidar with Orthogonal Polarization, or calliopee. calliopee which provides high-resolution vertical profiles of aerosols and clouds in the earth’s atmosphere.

**Scene 4: Picture of visualized aerosol data**

Data collected by the CALIPSO satellite can be visualized to show different views of aerosols and help researchers track the movement airborne particles and identify properties of them such as smoke or dust.

**Scene 5: Old visualization tool pan**

The current tools used to visualize this data however, are outdated and in need of new features and updates. The problem is that these tools are written in an older, proprietary language called IDL. This makes the software difficult to maintain, hard to upgrade and requires a more specialized developer to work with the software. That’s where the CALIPSO Cross-Cutting team comes in with VOCAL

**Scene 6: New music and shot of github account**

VOCAL is developed as the successor to the current IDL visualization tool, being developed in Python 2.7 and built on an Open Source model. The application is designed for the community and by the community, VOCAL takes future development in mind and promotes open source collaboration for developers taking part long after its initial release. This visualization shows the progress Grant and I have made over our time working on VOCAL by tracking file changes, additions, and deletions.

We hope to make building upon the software as easy as possible, so we’ve developed a website for troubleshooting problems and also offering tutorials on using or developing the software

**Scene 8: Shot of CALIPSO being opened**

VOCAL packs all the features of the previous IDL tool and more. Users can load and display CALIPSO satellite data in the form of HDF files, zoom about the plot, as well as move left and right to view additional data.

**Scene 7: Picture of axes and colormap**

Data is plotted as time and altitude, with time being the x axis and y being the altitude. Each pixel corresponds to a specific value, with its color being determined by the colormap shown on the right.

**Scene 8: Drawing of shapes on the plot**

Once visualized, users can select certain regions of the plot by drawing polygons such as rectangles or connecting vertices. These regions can later be used in a number of manipulations that will further allow researchers to take full advantage of what CALIPSO offers

**Scene 9: Assigning attributes to shapes**

Polygons can be assigned attributes and notes, these can help researchers identify and track the movement of aerosols or clouds in the atmosphere

**Scene 10: Exporting JSON**

Once labeled, researchers can choose to share these objects personally by exporting their data in the form of a JSON file which can then be reloaded into the plot by other users to view your shapes.

**Scene 11: Database**

One of the best features VOCAL offers is being able to store your shapes in a database. This database allows you to run query’s for shapes of specific attributes, notes, time ranges and more. Researchers can easily import and use the data provided inside of these regions to further their studies

**Scene 12: Closing shot**

We hope VOCAL can further assist researchers in their studies and promote development on our software through collaboration long past our time here at NASA.