Open Geospatial Consortium

OGC Code Sprint:

GeoPose - An Introduction to the Hillyfields Bubble Dataset

30th October 2023

James Clarke, Ordnance Survey
OGC GeoPose SWG

Introduction to GeoPose

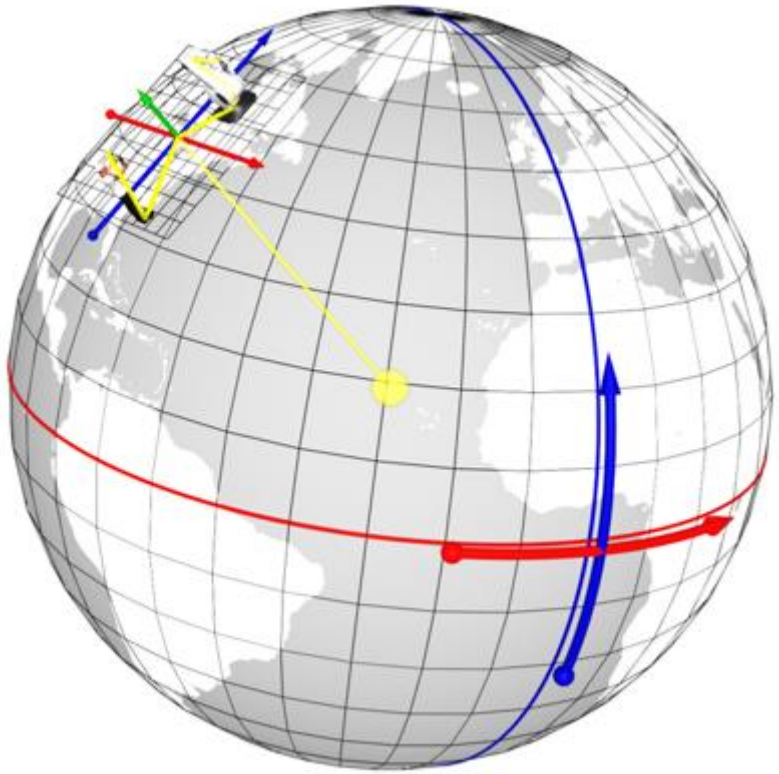
Requirement

We frequently need a standard to describe location of an object with 6 degrees of freedom – x, y, z, roll, pitch, yaw (Position and orientation).

Vision

Enabling two or more arbitrary systems to exchange position and orientation of objects.

- A **Pose** captures position and orientation of a real or digital object.
- It has an associated **FrameTransform** – Information to transform Pose geometry between reference frames.
- A **Fixed Pose** is a Pose whose outermost frame is related to an object with an externally defined position/orientation (**Ephemeris Object**).
- A **GeoPose** is a **Fixed Pose** related to a geospatial **Ephemeris Object** (the Earth).



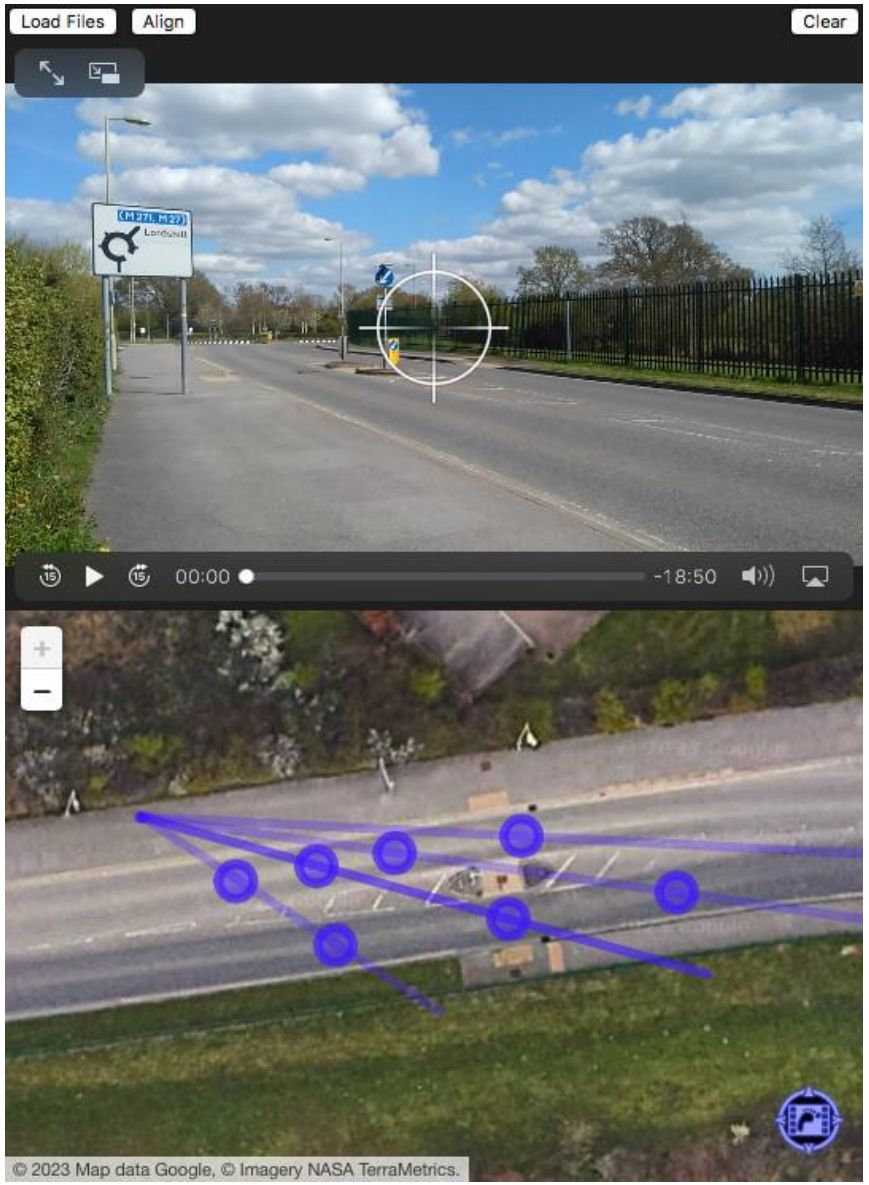
The GeoPose SWG

Version 1.0 OGC GeoPose approved mid-2022.

Comprises of 8 standardisation targets – core (Basic YPR, Basic Quaternion and Advanced), and composite (Chain, Graph and 3 Time Sequences).

Some of the items that we are working on (amongst others!):

- Integration of GeoPose into smapshot API
- Generating a multi-purpose dataset for the fulfilment of several prototypes and use cases (GeoPose in Minkowski Spacetime, Road Hazard Monitoring and Ride Hailing).
- Creating the GeoPose Sandbox - a testing environment to validate different elements.



Today's mentoring session (GeoPose 101 Tutorial) – 18:15-18:55

An Introduction to the Hillyfields Bubble (James Clarke)
A multipurpose dataset captured in support of the development of OGC prototypes.
Plus, an implementation example with Robot Operating System (ROS)

Use Cases and Prototypes with WebVMT (Rob Smith)
Tracking a cyclist from a moving vehicle with LiDAR in Testbed-17
Tracking vehicles from roadside video cameras in Testbed-19

The GeoPose Sandbox (Mikel Salazar)
An Introduction and demonstration on how to install and work with it, to create a rudimentary web-based project.

Technologies: Datasets, ROS, Python, WebVMT, Typescript/JavaScript.