



UASD Site Selection Workflow

Background

The site selection workflow is a spatial analysis of terrain to assist with LRZ and control site placement. Generally, the process uses a DEM in conjunction with visibility and viewshed tools to model line-of-sight from both the aircraft in flight to the ground, and from the ground to the aircraft.

Preprocessing

Download Data

- [USGS National Map](#) or other DEM source. 1/3 Arc Second or 10m resolution in IMG format preferred.
- Verify Horizontal & Vertical Coordinate systems of DEM
- Verify Pixel Depth

Create Elevation Mosaic

- Create File Geodatabase workspace
- Create Mosaic Dataset within File Geodatabase
 - Select the same coordinate systems as source DEMs
 - Specify pixel depth to comport with source DEMs
- Add Rasters to Mosaic Dataset
 - Set **Input Data** to "Dataset"
 - Check *Calculate Statistics* under **Raster Processing**
 - Check *Update Overviews* under **Mosaic Post-processing**
- Verify Results
 - Check Coverage
 - Check spot elevations

Viewshed Options

Air to Ground Process

- Create Observer point(s)
 - Position an observer point to represent the aircraft in flight over the incident. If a potential LRZ area is known, place the point on the opposite side of the incident to account for aircraft orbit.
- Run Visibility tool from Spatial Analyst
 - Set **Analysis Type** to "Observers"
 - Specify observer elevation (value entered in map units).
- Verify Results
 - Check output for logical validity
 - Compile with additional data to evaluate potential LRZ locations

Ground to Air Process

- Create Observer point
 - Position observer point at potential LRZ location
- Run Viewshed tool from Spatial Analyst
 - Specify Viewshed raster output
 - Specify Above Ground Level raster output
- Add AGL surface to DEM
 - Use Plus tool from Spatial Analyst
 - OR**
 - Use the Plus Raster Function
- Convert result to feet (if necessary)
 - Meters to Feet multiply surface by 3.281
 - Use Multiply tool from Spatial Analyst
 - OR**
 - Use the Multiply Raster Function
- Symbolize Results
 - Choose the **Classify** symbology option
 - Choose an appropriate number of classes
 - Select “Manual Interval” from **Method**
 - Add Class Breaks as desired
 - Choose an illustrative color ramp