NASA's medium spatial resolution MODIS sensors provide near-global, twice-daily remote sensing coverage of the Earth in 36 spectral bands that are optimized for monitoring a wide variety of environmental parameters. MODIS data is provided by NASA at no cost and is accessible via the Internet. As such, MODIS provides a rich source of remotely sensed data that can provide timely environmental information to both military operations and disaster monitoring and relief efforts. However, current workflows for downloading MODIS and identifying environmental features of interest require many steps and the use of multiple software packages. These software packages have the added limitations of being expensive and not readily available in combat and/or disaster relief environments. This project entailed the development of two custom tasks for ArcGIS Explorer that work in tandem as a toolkit to enable analysts to easily access MODIS data, develop environmental spatial data from it, and monitor change. ArcGIS Explorer provides a single, user-friendly software environment for all of this functionality. The toolkit focuses specifically on NASA’s MODIS Rapid Response Project image subsets, but it also provides a prototype for other ArcGIS Explorer-based tools that could be developed to access other imagery sources like NASA AVHRR and Landsat.

Key Features

- Direct query and download of MODIS Rapid Response image subsets
- Thumbnail viewing to facilitate data exploration
- Image classification to derive spatial data
- Change detection capabilities
- Automated metadata creation
- Data export capabilities for local storage
- Training point import/export

Applications

- Wildfires
- Floods
- Droughts
- Crop Monitoring
- Storm Impact
- Mobility Analysis
- Wildfire Monitoring
- Victoria, Australia
- Drought Monitoring
- Northwestern Afghanistan

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