The UTM Coordinate System and Archaeological Resource Recordation

Unit 8.2
CAL FIRE Archaeological Surveyor Training
February 25–March 1, 2019

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Key Points for the UTM Coordinate System

The System

- What is the UTM coordinate system?
- How does the UTM coordinate system work?
- How do I determine UTM coordinates in the field?
Question: What is the UTM Coordinate System?

Answer: Just another way to map points on the Earth’s surface.

- Foresters and firefighters typically use geodetic coordinates (longitude and latitude)
- Archaeologists use UTM coordinates
How does the UTM Coordinate System Work?

- System is based on Universal Transverse Mercator (UTM) map projection, a cylindrical projection.
- Cylindrical projections show true direction, but distort shape and area.
How does the UTM Coordinate System Work?

- UTM system has 60 zones from 84°N to 80°S
- Each zone is 6° of longitude in width
- Each zone is further split into 8° of latitude in length
How does the UTM Coordinate System Work?

UTM zones of the lower 48 states
How does the UTM Coordinate System Work?

UTM system covers the Earth’s surface with a one meter grid.

Spacing between black lines and coordinates is 1000 meters.

The spacing between “ticks” is 100 meters.
How does the UTM Coordinate System Work?

UTM coordinate notation may look a bit odd at first

Watch the Datum!

Difference in point location for NAD 1927 or 1983 can be 33 to 700 feet
How do I determine UTM coordinates in the field?

• USGS 7.5’ topographic quadrangle sheet and a red pencil (Classroom exercise)
• GPS receiver (Remember your NAD)
Key Points for the UTM Coordinate System

The Context

• Where did the UTM coordinate system come from?
• Why do I need to use the UTM coordinate system?
• When would I use UTM coordinates in my CAL FIRE cultural resources work?
Where does the UTM coordinate system come from and why was it adopted?

- German military develops a UTM reference system in 1942-1943
- US Army Corps of Engineers employs a UTM coordinate system from 1947 on
- Distances on a UTM grid easy to calculate with simple geometry rather than trigonometry
Context

Why do I need to use the UTM Coordinate System?

- Mapping standard for archaeological research in the Western Hemisphere
- You are training here to assist CAL FIRE archaeologists with that research
- Our regulators require it
Context

When would I use UTM coordinates in my CALFIRE cultural resources work?

• To map archaeological deposits and features, linear resources, and isolate artifacts during project review and during incident response

• To report the location of found resources in archaeological survey reports and on requisite resource records and maps

• To report the location of found resources to CAL FIRE archaeologists while on incidents
Questions?