

# MiscUTMCoord

**Inherits From:** MiscCoord : Object  
**Declared In:** misckit/miscgiskit/MiscUTMCoord.h

## Class Description

A MiscUTMCoord object contains points in a Universal Transverse Mercator Projection . Coordinates are expressed as eastings (distance in meters east of grid origin), northings (distance in meters north of grid origin) and elevations (in meters above mean radius used for grid). All distances are in meters.

MiscUTMCoords use a MiscPlanetCoordConverter object as the default converter for **convert:to:** operations (See MiscCoord). This related class is invisible to the user and handles conversion between the basic types discussed above.

MiscUTMCoords are useful both on their own and as an abstract superclass for building subclasses for various national and international UTM grids. Subclasses will nearly always create a single instance of a MiscUTMConstants object that is shared by all their instances and defines the particular grid system. In cases

where a particular local grid uses equations that differ from the default ones defined in `MiscPlanetCoordConverter`, the subclass may choose a different conversion contractor as well. Most subclasses will override the designated initializer for this purpose, but will supply no other special functionality, ie they are primarily a convenience that hides the details of the grid definition.

## Method Types

Initialization	- <code>initWithDescription:constants:</code>
Accessing Coord values	- <code>easting</code> - <code>northing</code> - <code>elevation</code> - <code>coordEastingMeters:northingMeters:elevationMeters:</code> - <code>setCoordEastingMeters:northingMeters:elevationMeters:</code>

## Instance Methods

### **`coordEastingMeters:northingMeters:elevationMeters`**

- **`coordEastingMeters:(double*)eastValue northingMeters:(double*)northValue elevationMeters:(double*)elevationValue`**

Get the eastings (distance in meters east of grid origin), northings (distance in meters north of grid origin) and elevations (in meters above mean radius used for grid) values of the point at the current index. Returns **`self`**.

**See also:** - **`setCoordEastingMeters:northingMeters:elevationMeters`**

### **eastings**

- (double)**eastings**

Returns the eastings value (distance in meters east of grid origin) of the point at the current index.

**See also:** - **northings**, - **elevation**

### **elevation**

- (double)**elevation**

Returns the elevation value (in meters above mean radius used for grid) of the point at the current index.

**See also:** - **eastings**, - **northings**

### **initDescription:constants:**

- **initDescription:**(char\*)*textString* **constants:** *aUTMConstant*

Designated initializer for the MiscUTMCoord class. *textString* is copied and may be used in describing the set of points. *aUTMConstant* is the id of a user initialized MiscUTMConstants object. MiscUTMConstants may be generated for any possible UTM coordinate system. The new object will initially have space for one point. The default conversion contractor for conversion between coordinate systems is set to be the instance of MiscPlanetCoordConverter.

### **northings**

- (double)**northings**

Returns the northings value (distance in meters north of grid origin) of the point at the current index.

**See also:** - eastings, - elevation

**setCoordEastingMeters:northingMeters:elevationMeters**

- **setCoordEastingMeters:**(double)*eastValue* **northingMeters:**(double)*northValue* **elevationMeters:**  
(double)*elevationValue*

Sets the eastings (distance in meters east of grid origin), northings (distance in meters north of grid origin) and elevation (in meters above mean radius used for grid) values of the point at the current index.

**See also:** - coordEastingMeters:northingMeters:elevationMeters