

# Calculadora Geográfica

GeoCalc de Escritorio y en-línea



[www.engesat.com.br](http://www.engesat.com.br)

Tel & : +55 41 99134 0990

# **Geographic Calculator 2017**

When close isn't close enough. Ensure your geospatial data is accurate.

**Cuando lo aproximado no es suficiente. Asegúrese de que sus datos Geoespaciales sean precisos.**



**Blue Marble GEOGRAPHICS**

*Mind the gap between world and map*

# Software geodésico



## Map Projections

### Which ones best suit your needs?

Every flat map misrepresents the surface of the Earth in some way. No map can rival a globe in truly representing the surface of the entire Earth. However, a map or parts of a map can show one or more — but never all — of the following: True direction. True distances. True areas. True shapes.

For example, the basic Mercator projection is unique; it yields the only map on which a straight line drawn anywhere within its bounds shows a particular type of direction, but distances and areas are grossly distorted near the map's polar regions. On an equidistant map, distances are true only along particular lines such as those radiating from a single point selected as the center of the projection.

Shapes are more or less distorted on every equal-area map. Sizes of areas are distorted on conical maps even though shapes of small areas are shown correctly. The degree and kinds of distortion vary with the projection used in making a map of a particular area. Some projections are suited for mapping large areas that are mainly north-south or east-west, others for large areas that are mainly east-west in extent, and still others for large areas that

are oblique to the Equator.

The scale of a map on any projection is always important and often crucial to the map's usefulness for a given purpose. For example, the almost grotesque distortion that is obvious at high latitudes on a small-scale Mercator map of the world disappears almost completely on a properly oriented large-scale Transverse Mercator map of a small

area in the same high latitudes. A large-scale (1:24,000) 25-minute USGS topographic map based on the Transverse Mercator projection is nearly correct in every respect.

A basic knowledge of the properties of commonly used projections helps in selecting a map that comes closest to fulfilling a specific need.

### The Globe

Distortion: — None  
Direction: — True  
Shape: — True  
Area: — True

Shortest distance between any two points on the surface of the Earth can be found only by a great circle.

Distortion: None. The straight globe has a very small scale but shows relatively little detail.

Looks to be accurate and optimum. Difficult to carry around.

Advantages: None.

No flat globe.

Earth's surface is not a flat plane. It is a curved surface. The surface of the Earth is not a flat plane. It is a curved surface. The surface of the Earth is not a flat plane. It is a curved surface.

Meridians are equally spaced on the globe, but their distance apart increases as you move toward the poles. On a flat map, meridians are equally spaced on parallels.

Meridians at 90° are half as far apart as parallels. Parallels and meridians meet at 90° angles. The area of the surface bounded by any two parallels and any two meridians is grossly distorted near the poles.

The scale factor at each point is the same in any direction.

Distortion: None. As represented by photographs, projections, and maps.



### Mercator

Need for navigation or maps of small areas. May be used for the entire globe. Distortion: None. The straight globe has a very small scale but shows relatively little detail.

Looks to be accurate and optimum. Difficult to carry around.

Advantages: None.

Shapes are mostly north-south or east-west in extent, and still others for large areas that are mainly east-west in extent, and still others for large areas that are mainly east-west in extent.

Distortion: None. As represented by photographs, projections, and maps.



### Transverse Mercator

Need for navigation or maps of small areas. May be used for the entire globe. Distortion: None. The straight globe has a very small scale but shows relatively little detail.

Looks to be accurate and optimum. Difficult to carry around.

Advantages: None.

Shapes are mostly north-south or east-west in extent, and still others for large areas that are mainly east-west in extent.

Distortion: None. As represented by photographs, projections, and maps.



### Oblique Mercator

Need for navigation or maps of small areas. May be used for the entire globe. Distortion: None. The straight globe has a very small scale but shows relatively little detail.

Looks to be accurate and optimum. Difficult to carry around.

Advantages: None.

Shapes are mostly north-south or east-west in extent, and still others for large areas that are mainly east-west in extent.

Distortion: None. As represented by photographs, projections, and maps.



### Conic

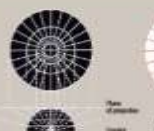
Need for navigation or maps of small areas. May be used for the entire globe. Distortion: None. The straight globe has a very small scale but shows relatively little detail.

Looks to be accurate and optimum. Difficult to carry around.

Advantages: None.

Shapes are mostly north-south or east-west in extent, and still others for large areas that are mainly east-west in extent.

Distortion: None. As represented by photographs, projections, and maps.



### Antimeridian Equal-Area


Need for navigation or maps of small areas. May be used for the entire globe. Distortion: None. The straight globe has a very small scale but shows relatively little detail.

Looks to be accurate and optimum. Difficult to carry around.

Advantages: None.

Shapes are mostly north-south or east-west in extent, and still others for large areas that are mainly east-west in extent.

Distortion: None. As represented by photographs, projections, and maps.



### Lambert Antimeridian Equal Area

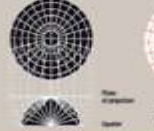
Need for navigation or maps of small areas. May be used for the entire globe. Distortion: None. The straight globe has a very small scale but shows relatively little detail.

Looks to be accurate and optimum. Difficult to carry around.

Advantages: None.

Shapes are mostly north-south or east-west in extent, and still others for large areas that are mainly east-west in extent.

Distortion: None. As represented by photographs, projections, and maps.



### Albers Equal Area Conic


Need for navigation or maps of small areas. May be used for the entire globe. Distortion: None. The straight globe has a very small scale but shows relatively little detail.

Looks to be accurate and optimum. Difficult to carry around.

Advantages: None.

Shapes are mostly north-south or east-west in extent, and still others for large areas that are mainly east-west in extent.

Distortion: None. As represented by photographs, projections, and maps.



# Puntos de Interés

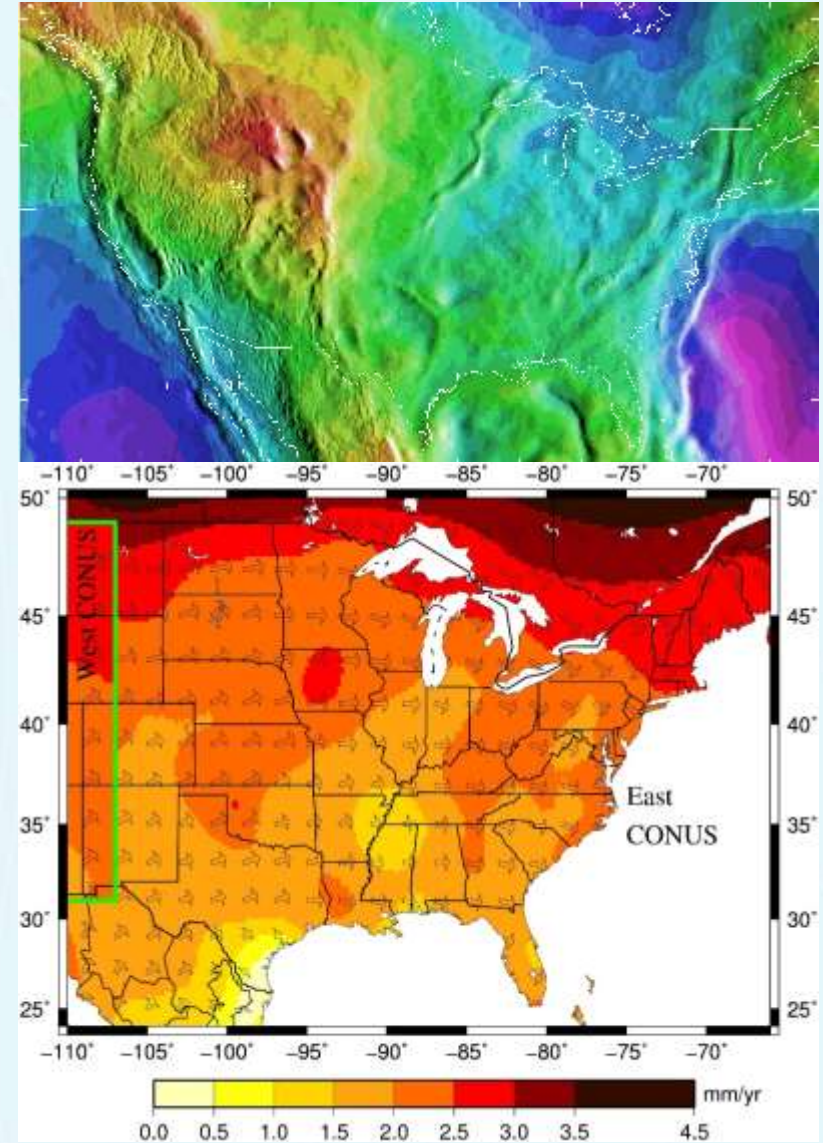
- La más extensa base de datos de sistemas de coordenadas y transformaciones disponible en un paquete de conversión.
  - 5000 Sistemas de referencia de coordenadas
  - 500 datums horizontales
  - 2000 transformaciones

# Puntos de Interés

- Admite cerca de 60 formatos de imágenes vectoriales, imágenes rasterizadas y cuadrículas de elevación
- Conocido especialmente por las conversiones interactivas y los trabajos de base de datos de puntos
  - Expone todos los parámetros.
  - Métodos de referencias cruzadas a las normas OGP / ISO
  - Verificable y repetible

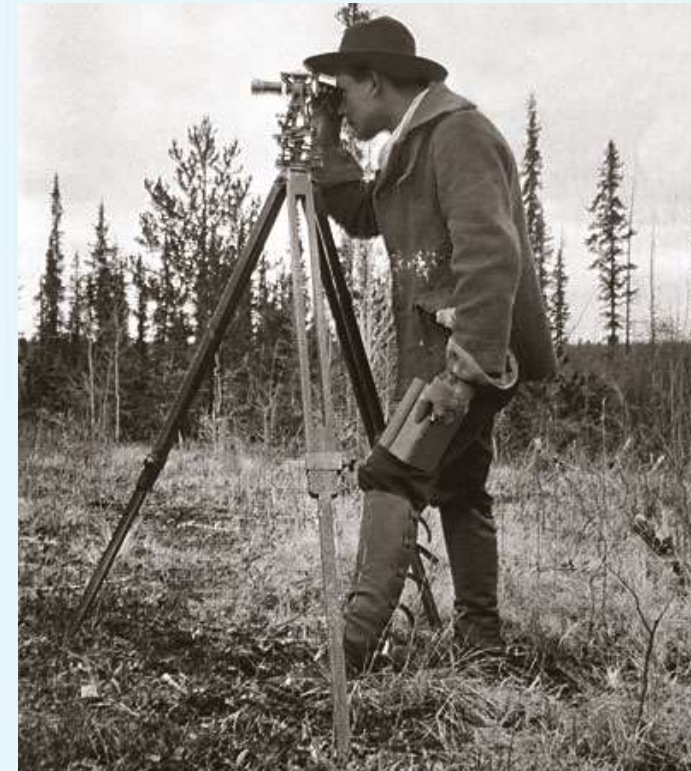
# Puntos de Interés

- Apoyo para
  - Datums verticales y transformaciones
    - Incluye varios modelos mundiales y datums de marea.
  - Transformaciones basadas en el tiempo
  - Derivación de la transformación del datum
  - Transformaciones basadas en polinomios



# Usuario base

- Topógrafos - terrestres e hidrográficos
- Industria de petróleo y gas
- Gobierno y militar
- Geodesistas
- Tecnicos geo
- Fabricantes de hardware/sistemas



# Calculadora en vivo...





# Registro de GeoCalc en línea

- Registro de parámetros geodésicos alojados en la web
- Construido en GeoCalc API en línea
- Una biblioteca geodésica probada



# Bajo el capó

- Misma base de datos utilizada por la calculadora geográfica
  - Basada en XML
  - Sincronizada con EPSG
  - Todos los parámetros son expuestos y con referencias cruzadas.

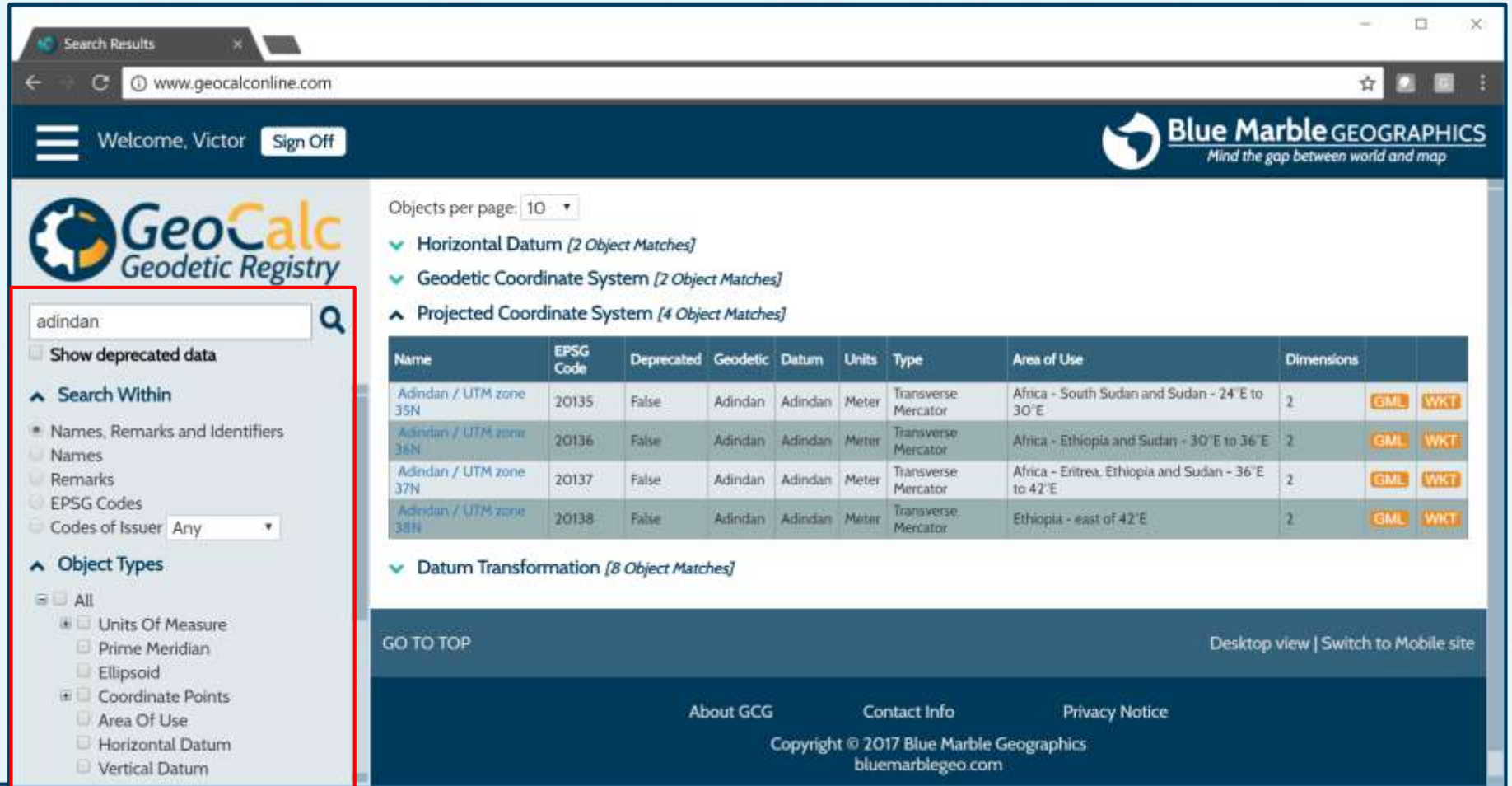


# Capacidades

- Accesible desde un navegador web
  - Dispositivo móvil amigable
- Búsqueda multivariada de texto/numérica
- Búsqueda basada en el mapa
- Enlace directo a parámetros
- Basado en estándares
- Se proporcionan las actualizaciones de bases de datos para la Calculadora Geográfica

# Búsqueda

- Buscar por valor de cadena único
- Búsqueda por nombre, identificador, observaciones, código EPSG, etc.
- Búsqueda por cualquier tipo de objeto único.



Search Results

www.geocalconline.com

Welcome, Victor [Sign Off](#)

**GeoCalc**  
Geodetic Registry

adindan

Show deprecated data

Search Within

- Names, Remarks and Identifiers
- Names
- Remarks
- EPSG Codes
- Codes of Issuer: Any

Object Types

- All
- Units Of Measure
- Prime Meridian
- Ellipsoid
- Coordinate Points
- Area Of Use
- Horizontal Datum
- Vertical Datum

Objects per page: 10

- Horizontal Datum [2 Object Matches]
- Geodetic Coordinate System [2 Object Matches]
- Projected Coordinate System [4 Object Matches]

Name	EPSG Code	Deprecated	Geodetic	Datum	Units	Type	Area of Use	Dimensions		
Adindan / UTM zone 35N	20135	False	Adindan	Adindan	Meter	Transverse Mercator	Africa - South Sudan and Sudan - 24°E to 30°E	2	GML	WKT
Adindan / UTM zone 36N	20136	False	Adindan	Adindan	Meter	Transverse Mercator	Africa - Ethiopia and Sudan - 30°E to 36°E	2	GML	WKT
Adindan / UTM zone 37N	20137	False	Adindan	Adindan	Meter	Transverse Mercator	Africa - Eritrea, Ethiopia and Sudan - 36°E to 42°E	2	GML	WKT
Adindan / UTM zone 38N	20138	False	Adindan	Adindan	Meter	Transverse Mercator	Ethiopia - east of 42°E	2	GML	WKT

Datum Transformation [8 Object Matches]

GO TO TOP

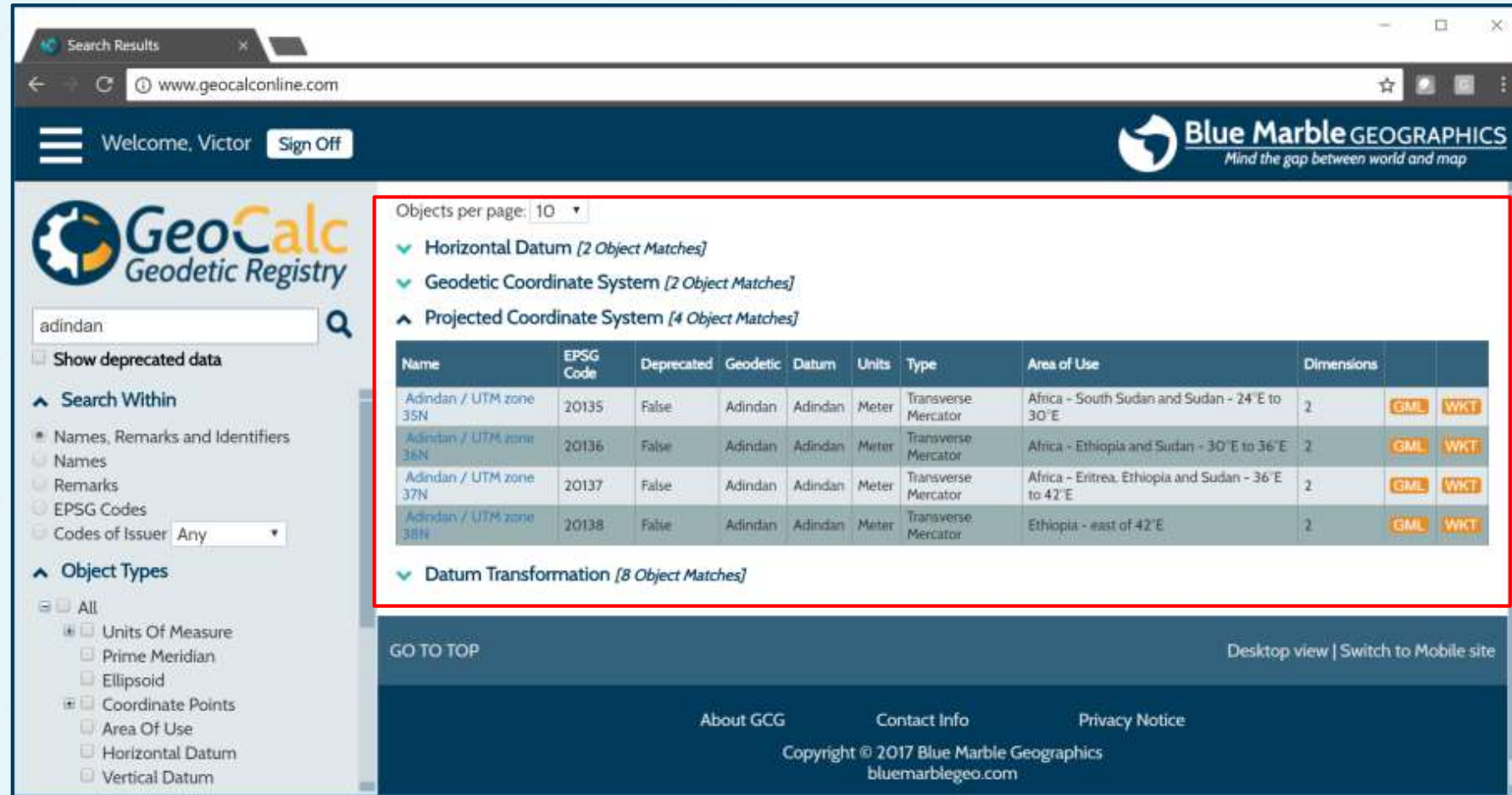
Desktop view | [Switch to Mobile site](#)

[About GCG](#) [Contact Info](#) [Privacy Notice](#)

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# Búsqueda (continua)

- Encuentra artículos por cualquier combinación de tipos
- Encuentra detalles personalizados basados en el tipo
- Puede buscar y ver el área de uso de un objeto determinado



The screenshot shows the search results for 'adindan' on the GeoCalc Geodetic Registry website. The search results are categorized into three groups: Horizontal Datum (2 matches), Geodetic Coordinate System (2 matches), and Projected Coordinate System (4 matches). A table lists the details for the Projected Coordinate System matches.

Name	EPSG Code	Deprecated	Geodetic	Datum	Units	Type	Area of Use	Dimensions		
Adindan / UTM zone 35N	20135	False	Adindan	Adindan	Meter	Transverse Mercator	Africa - South Sudan and Sudan - 24° E to 30° E	2	GML	WKT
Adindan / UTM zone 36N	20136	False	Adindan	Adindan	Meter	Transverse Mercator	Africa - Ethiopia and Sudan - 30° E to 36° E	2	GML	WKT
Adindan / UTM zone 37N	20137	False	Adindan	Adindan	Meter	Transverse Mercator	Africa - Eritrea, Ethiopia and Sudan - 36° E to 42° E	2	GML	WKT
Adindan / UTM zone 38N	20138	False	Adindan	Adindan	Meter	Transverse Mercator	Ethiopia - east of 42° E	2	GML	WKT

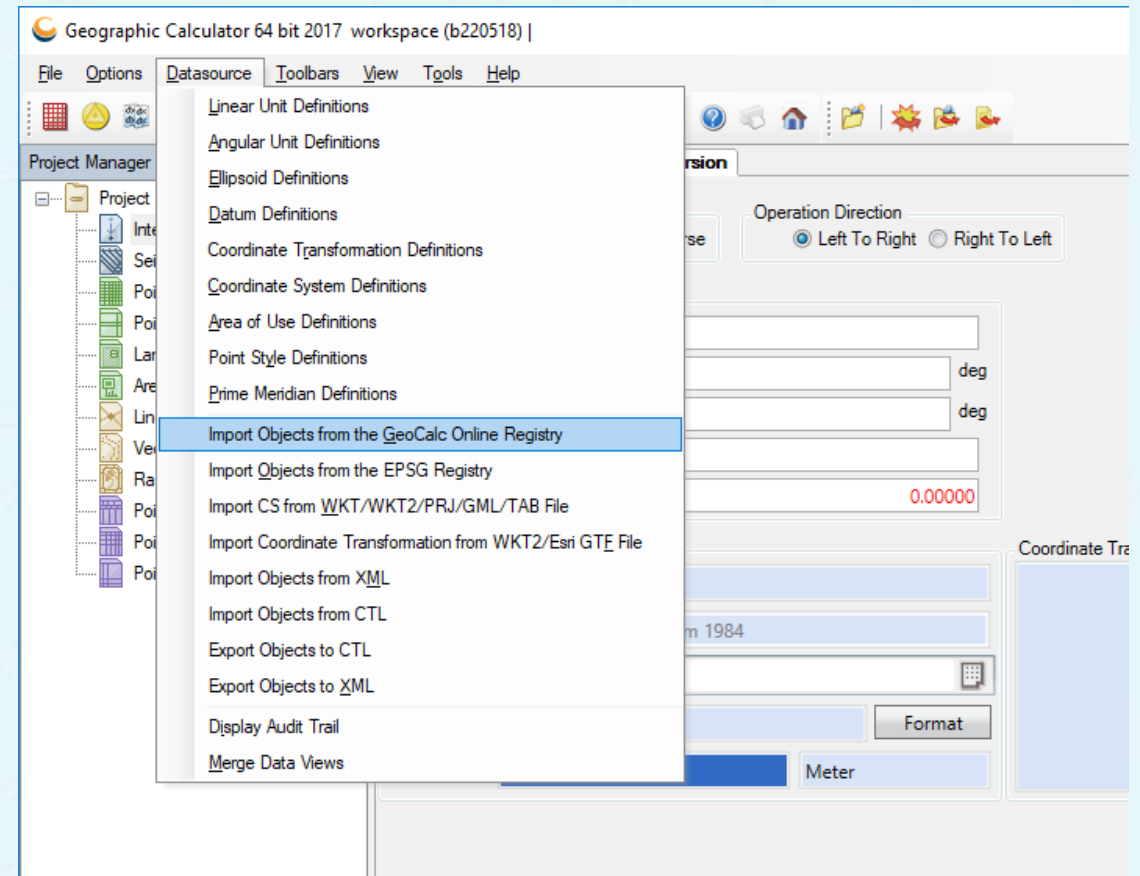
# Interoperabilidad

The screenshot shows the GeoCalc Geodetic Registry interface. The search results for 'adindan' are displayed under the heading 'Projected Coordinate System [EPSG:20135]'. Two sets of export buttons are circled in red: one set for the main entry (URL, PRINT, GML, WKT) and another set for the 'Area Of Use [EPSG:2827]' entry (URL, PRINT, GML). The interface includes a search bar, a sidebar with filters, and a map showing the location of the area of use in Africa.

El Registro de GeoCalc proporciona acceso a todos los formatos de exportación de GeoCalc. Esto incluye GML, Well Known Text, PRJ y otros formatos estándar de la industria.

# Integración de la Calculadora Geográfica

- Mantenimiento de fuentes de datos y publicación realizada a través de la interfaz de la calculadora geográfica.
- La actualización de usuarios de GeoCalc Online Registry mantiene a los usuarios de la Calculadora al día con las últimas definiciones y desactualizaciones



# ¿Qué nos da esto?



# Interoperabilidad

```
<?xml version="1.0" encoding="UTF-8"?>
<gml:ProjectedCRS xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:epsg="urn:x-ogp:spec:schema-xsd:EPSG:1.0:dataset"
xmlns:xlink="http://www.w3.org/1999/xlink" gml:id="epsg-crs-20135">
  <gml:metaDataProperty>
    <epsg:CommonMetaData>
      <epsg:type>projected</epsg:type>
      <epsg:revisionDate>2015-04-22</epsg:revisionDate>
      <epsg:changes>
        <epsg:changeID xlink:href="urn:ogc:def:change-request:EPSG::2015.010" />
      </epsg:changes>
      <epsg:isDeprecated>false</epsg:isDeprecated>
    </epsg:CommonMetaData>
  </gml:metaDataProperty>
  <gml:identifier codeSpace="OGP">urn:ogc:def:crs:EPSG::20135</gml:identifier>
  <gml:name>Adindan / UTM zone 35N</gml:name>
  <gml:domainOfValidity xlink:href="urn:ogc:def:area:EPSG::2827" />
  <gml:conversion>
    <gml:Conversion gml:id="bmg-coordinateoperation-transverse_mercator_for_20135">
      <gml:identifier codeSpace="LOCAL">urn:ogc:def:coordinateOperation:BMG::Transverse_Mercator_for_20135</gml:identifier>
      <gml:name>Transverse Mercator</gml:name>
      <gml:scope>not known</gml:scope>
      <gml:method>
        <gml:OperationMethod gml:id="epsg-method-9807">
          <gml:identifier codeSpace="OGP">urn:ogc:def:method:EPSG::9807</gml:identifier>
          <gml:name>Transverse Mercator</gml:name>
          <gml:formula>No description available.</gml:formula>
          <gml:generalOperationParameter>
            <gml:OperationParameter>
              <gml:identifier codeSpace="OGP">urn:ogc:def:parameter:EPSG::8802</gml:identifier>
              <gml:name>central_meridian</gml:name>
            </gml:OperationParameter>
          </gml:generalOperationParameter>
        </gml:OperationMethod>
      </gml:method>
    </gml:Conversion>
  </gml:conversion>
</gml:ProjectedCRS>
```

Aquí hay un ejemplo de exportación de GML para un CRS proyectado. Observe que las etiquetas de metadatos EPSG se exportan de forma nativa.

También podemos referirnos a este sistema específico con una URL única.

# Interoperabilidad (cont.)

```

PROJCS["Adindan / UTM zone 35N",GEOGCS["Adindan",DATUM["Adindan",SPHEROID["Clarke 1880
(RGS)",6378249.145,293.465000000,AUTHORITY["EPSG","7012"]],TOWGS84[-162,-12,206,0,0,0],AUTHORITY["EPSG","6201"]],PRIMEM["Greenwich",0,AUTH
ORITY["EPSG","8901"]],UNIT["Degree",0.0174532925199433,AUTHORITY["EPSG","9102"]],AXIS["Geodetic longitude",EAST],AXIS["Geodetic
latitude",NORTH],AUTHORITY["EPSG","4201"]],PROJECTION["Transverse_Mercator"],PARAMETER["central_meridian",27],PARAMETER["latitude_of_origin
",0],PARAMETER["scale_factor",0.9996],PARAMETER["false_easting",500000],PARAMETER["false_northing",0],UNIT["Meter",1,AUTHORITY["EPSG","9001"
]],AXIS["Easting",EAST],AXIS["Northing",NORTH],AUTHORITY["EPSG","20135"]]

```

```

PROJCS["Adindan__UTM_zone_35N",GEOGCS["GCS_Adindan",DATUM["D_Adindan",SPHEROID["Clarke_1880__RGS_",6378249.145,293.465000000]],PRIMEM["Gree
nwich",0],UNIT["Degree",0.017453292519943295]],PROJECTION["Transverse_Mercator"],PARAMETER["Central_Meridian",27],PARAMETER["Latitude_Of_Ori
gin",0],PARAMETER["Scale_Factor",0.9996],PARAMETER["False_Easting",500000],PARAMETER["False_Northing",0],UNIT["Meter",1]]

```

```

PROJCRS["Adindan / UTM zone 35N",BASEGEOCRS["Adindan",DATUM["Adindan",ELLIPSOID["Clarke 1880
(RGS)",6378249.145,293.465,0],ID["EPSG",7012]],ID["EPSG",6201]],CONVERSION["UTM Zone 35N",METHOD["Transverse
Mercator",ID["EPSG",9807]],PARAMETER["Longitude of natural origin",27,ANGLEUNIT["degree",0.017453292519943]],PARAMETER["Latitude of natural
origin",0,ANGLEUNIT["degree",0.017453292519943]],PARAMETER["Scale factor at natural origin",0.9996,SCALEUNIT["unity",1.0]],PARAMETER["False
northing",0,LENGTHUNIT["metre",1.0]],PARAMETER["False easting",500000,LENGTHUNIT["metre",1.0]],CS[cartesian,2],AXIS["easting
(E)",east,ORDER[1]],AXIS["northing (N)",north,ORDER[2]],LENGTHUNIT["metre",1.0],ID["EPSG",20135]]

```

Aquí está el mismo sistema de coordenadas como:

WKT

PRJ

WKT2

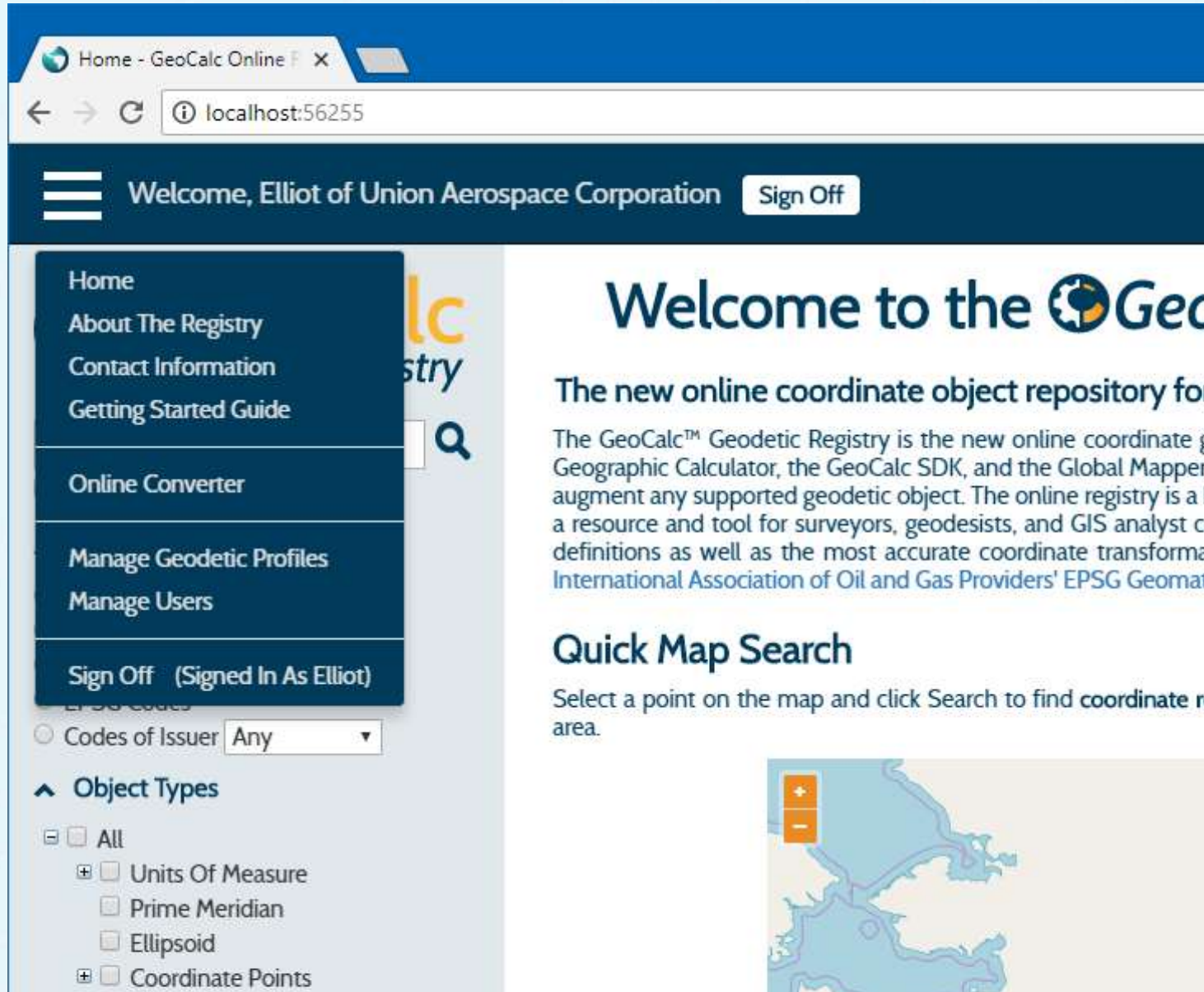
# Visite al sitio en vivo

<http://www.geocalconline.com>



# Desarrollos Recientes

- Inicios de sesión de nivel de usuario
- Gestión del perfil geodésico
- Conversión de puntos en línea



Home - GeoCalc Online

localhost:56255

Welcome, Elliot of Union Aerospace Corporation [Sign Off](#)

Home  
About The Registry  
Contact Information  
Getting Started Guide

Online Converter

Manage Geodetic Profiles  
Manage Users

Sign Off (Signed In As Elliot)

Codes of Issuer  Any

Object Types


- All
  - Units Of Measure
  - Prime Meridian
  - Ellipsoid
  - Coordinate Points

## Welcome to the GeoCalc Geodetic Registry

The new online coordinate object repository for the GeoCalc™ Geographic Calculator, the GeoCalc SDK, and the Global Mapper. The online registry is a resource and tool for surveyors, geodesists, and GIS analysts. It provides a central location for coordinate definitions as well as the most accurate coordinate transformations. The International Association of Oil and Gas Providers' EPSG Geomatics

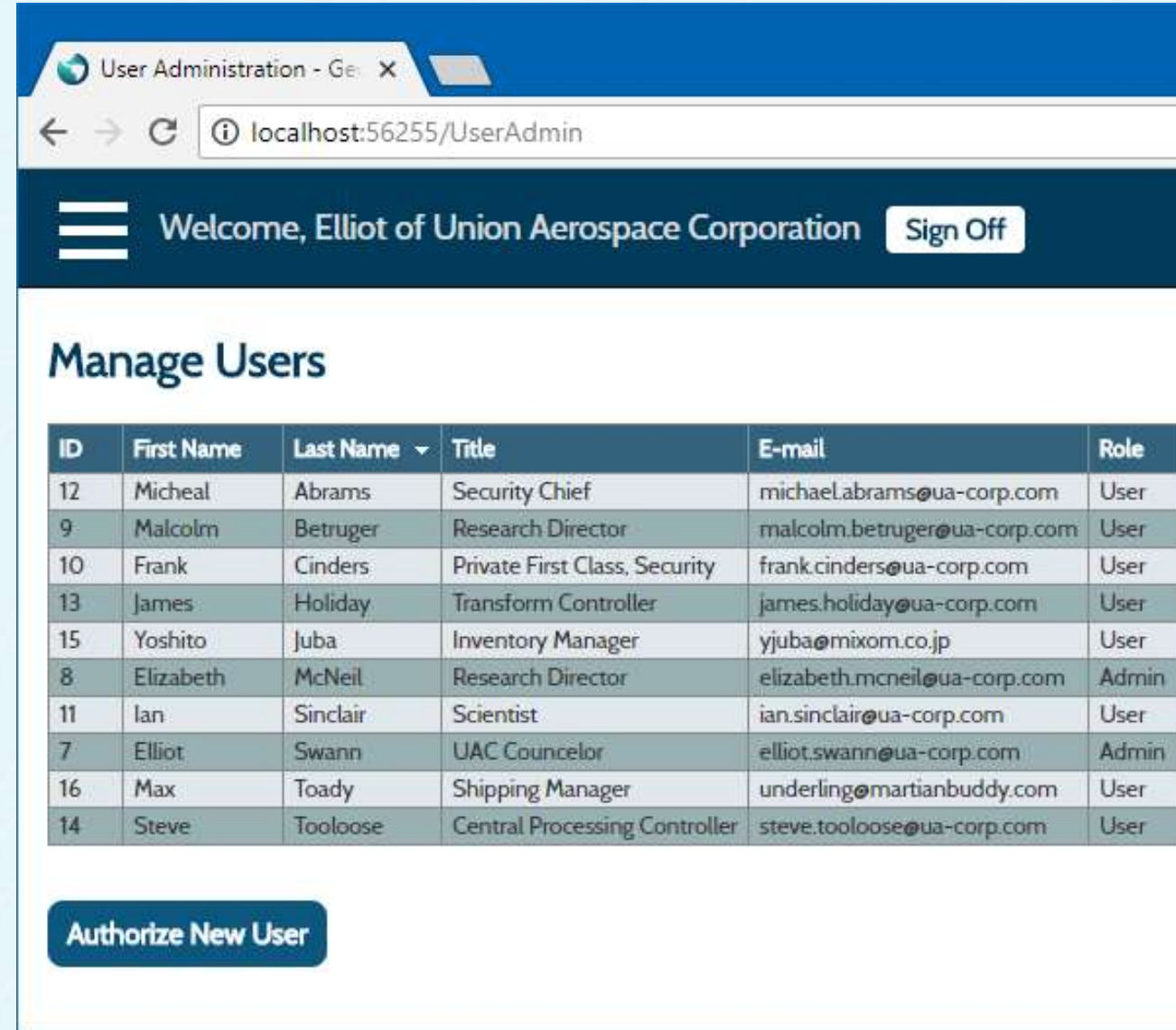
### Quick Map Search

Select a point on the map and click Search to find coordinate information for the area.



# Desarrollos Recientes

- Niveles de usuario
  - Usuario normal: permisos de solo lectura y opciones para el acceso de conversión
  - Usuario administrativo: acceso total para administrar perfiles por usuario o grupo



The screenshot shows a web browser window with the title "User Administration - Ge" and the URL "localhost:56255/UserAdmin". The page header includes a hamburger menu icon, the text "Welcome, Elliot of Union Aerospace Corporation", and a "Sign Off" button. The main content area is titled "Manage Users" and contains a table with the following data:

ID	First Name	Last Name	Title	E-mail	Role
12	Micheal	Abrams	Security Chief	michaelabrams@ua-corp.com	User
9	Malcolm	Betruger	Research Director	malcolm.betruger@ua-corp.com	User
10	Frank	Cinders	Private First Class, Security	frank.cinders@ua-corp.com	User
13	James	Holiday	Transform Controller	james.holiday@ua-corp.com	User
15	Yoshito	Juba	Inventory Manager	yjuba@mixom.co.jp	User
8	Elizabeth	McNeil	Research Director	elizabeth.mcneil@ua-corp.com	Admin
11	Ian	Sinclair	Scientist	ian.sinclair@ua-corp.com	User
7	Elliot	Swann	UAC Councelor	elliott.swann@ua-corp.com	Admin
16	Max	Toady	Shipping Manager	underling@martianbuddy.com	User
14	Steve	Tooloose	Central Processing Controller	steve.tooloose@ua-corp.com	User

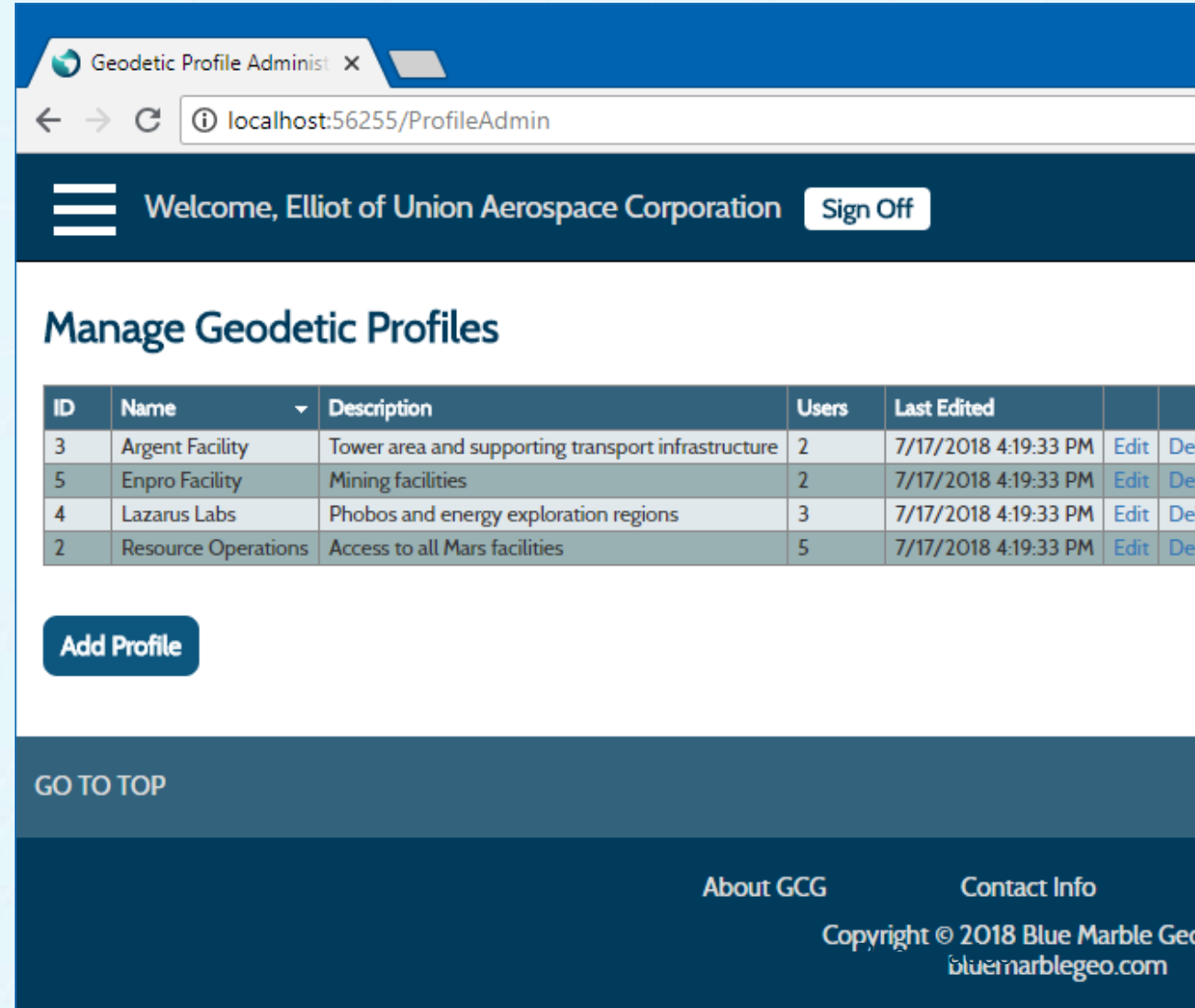
Below the table is a button labeled "Authorize New User".



# Futuros desarrollos

## Perfiles geodésicos

- Habilitar el acceso simplificado a la base de datos
- Permite o bloquea el acceso a exportación y conversión



The screenshot shows a web browser window with the title "Geodetic Profile Administ" and the URL "localhost:56255/ProfileAdmin". The page header includes a hamburger menu icon, the text "Welcome, Elliot of Union Aerospace Corporation", and a "Sign Off" button. The main content area is titled "Manage Geodetic Profiles" and contains a table with the following data:

ID	Name	Description	Users	Last Edited		
3	Argent Facility	Tower area and supporting transport infrastructure	2	7/17/2018 4:19:33 PM	Edit	De
5	Enpro Facility	Mining facilities	2	7/17/2018 4:19:33 PM	Edit	De
4	Lazarus Labs	Phobos and energy exploration regions	3	7/17/2018 4:19:33 PM	Edit	De
2	Resource Operations	Access to all Mars facilities	5	7/17/2018 4:19:33 PM	Edit	De

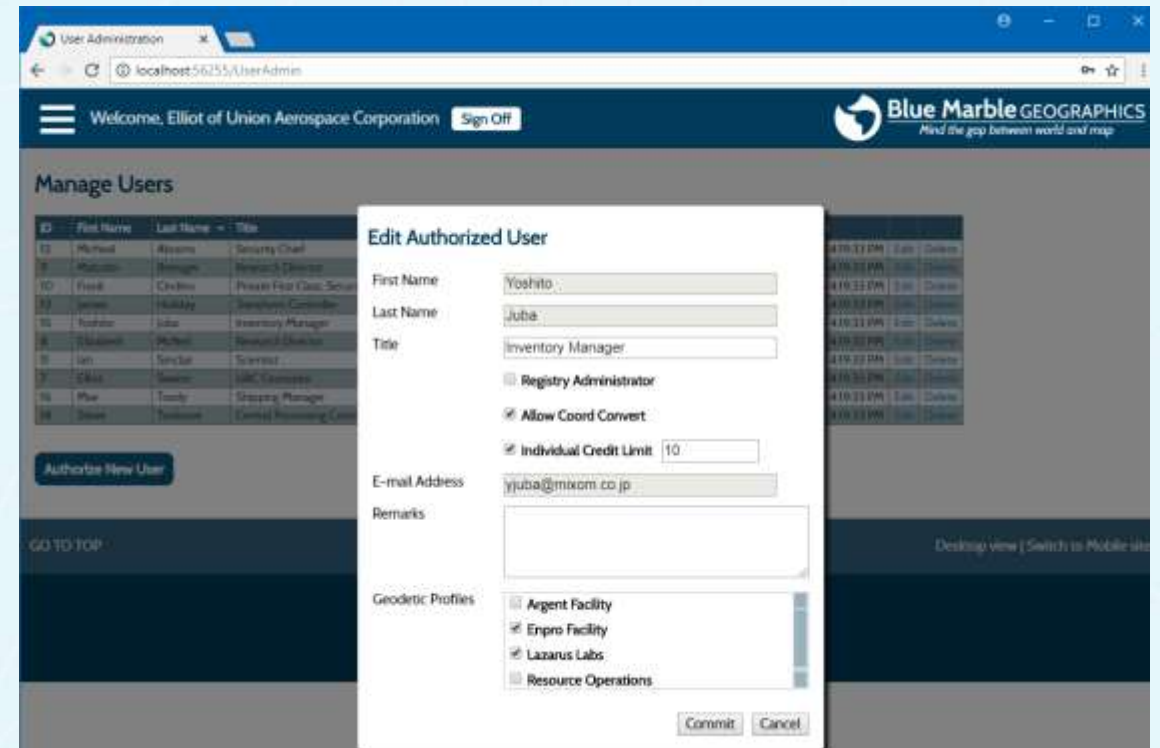
Below the table is a blue button labeled "Add Profile". At the bottom of the page, there is a "GO TO TOP" link and a footer with "About GCG", "Contact Info", and "Copyright © 2018 Blue Marble Geographics bluemarblegeo.com".



# Futuros Desarrollos

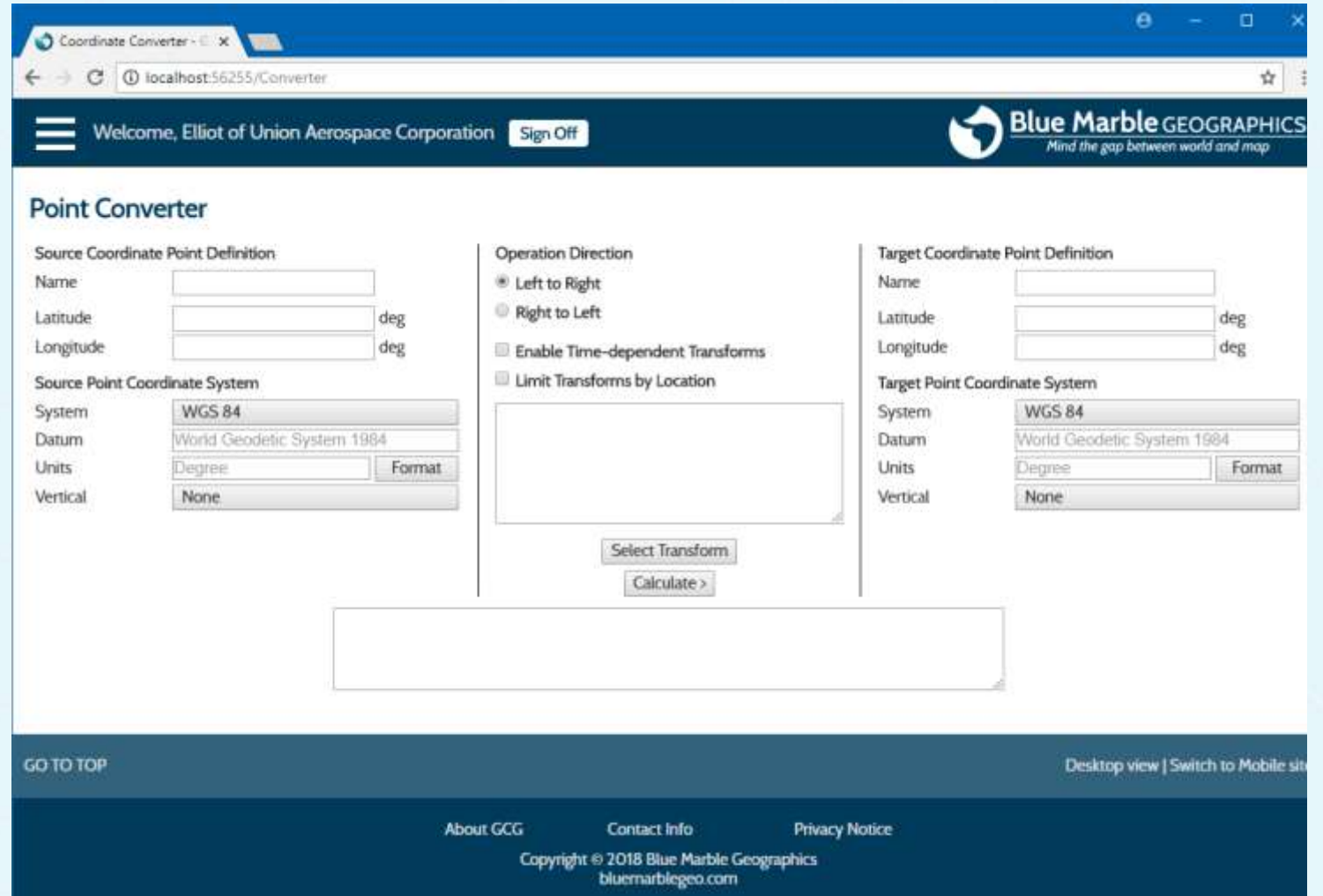
Control granular (a mayor detalle)

- sobre usuarios individuales
- Sobre su acceso a los perfiles y configuraciones geodésicas



# Futuros Desarrollos

Conversión y transformación de puntos a través de un formulario web con opciones regidas por los perfiles geodésicos



The screenshot shows a web browser window titled "Coordinate Converter" at the URL "localhost:56255/Converter". The page header includes a navigation menu, a welcome message for "Elliot of Union Aerospace Corporation" with a "Sign Off" button, and the Blue Marble GEOGRAPHICS logo with the tagline "Mind the gap between world and map".

The main content area is titled "Point Converter" and is divided into three columns:

- Source Coordinate Point Definition:** Includes input fields for Name, Latitude (deg), and Longitude (deg).
- Source Point Coordinate System:** Includes dropdown menus for System (WGS 84), Datum (World Geodetic System 1984), Units (Degree), and Vertical (None). A "Format" button is next to the Units field.
- Operation Direction:** Includes radio buttons for "Left to Right" (selected) and "Right to Left", and checkboxes for "Enable Time-dependent Transforms" and "Limit Transforms by Location".
- Target Coordinate Point Definition:** Includes input fields for Name, Latitude (deg), and Longitude (deg).
- Target Point Coordinate System:** Includes dropdown menus for System (WGS 84), Datum (World Geodetic System 1984), Units (Degree), and Vertical (None). A "Format" button is next to the Units field.

Below the operation direction section are buttons for "Select Transform" and "Calculate >". A large empty text box is located at the bottom of the main content area.

The footer contains a "GO TO TOP" link, a "Desktop view | Switch to Mobile site" link, and navigation links for "About GCG", "Contact Info", and "Privacy Notice". Copyright information for Blue Marble Geographics is also present.



# ¡ Gracias !

