



NORAD supported project in MRRD covering
Capacity Building and Institutional Cooperation in the
field of Hydrogeology for Faryab Province
Afghanistan

GIS Course 4.5

Practical Use of Online Maps

By Andreas de Jong
December 2014

PURPOSE OF THIS COURSE

The main purpose of this course is to:

- a) Introduce course participants to the practical aspects of creating online GIS maps using the ArcGIS Online utility.
- b) Create some example maps using Afghan data provided by participants.

KEY REFERENCES

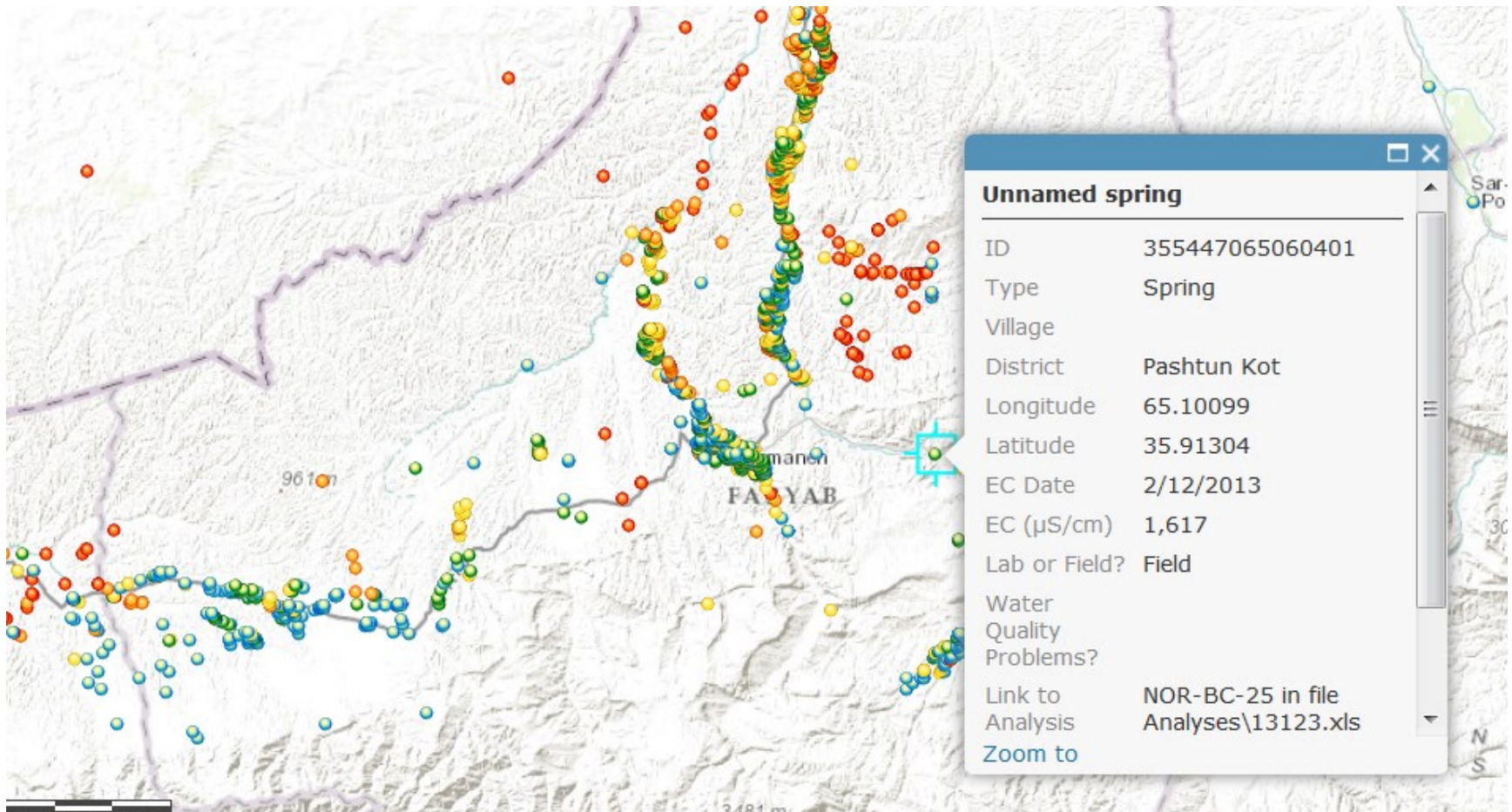
ESRI ArcGIS Online: [*https://www.arcgis.com/features/*](https://www.arcgis.com/features/)

Documentation: [*http://doc.arcgis.com/en/arcgis-online/index.html*](http://doc.arcgis.com/en/arcgis-online/index.html)

Online Training: [*http://www.esri.com/training/main*](http://www.esri.com/training/main) & [*http://learn.arcgis.com/en/projects/get-started-with-arcgis-online/*](http://learn.arcgis.com/en/projects/get-started-with-arcgis-online/)

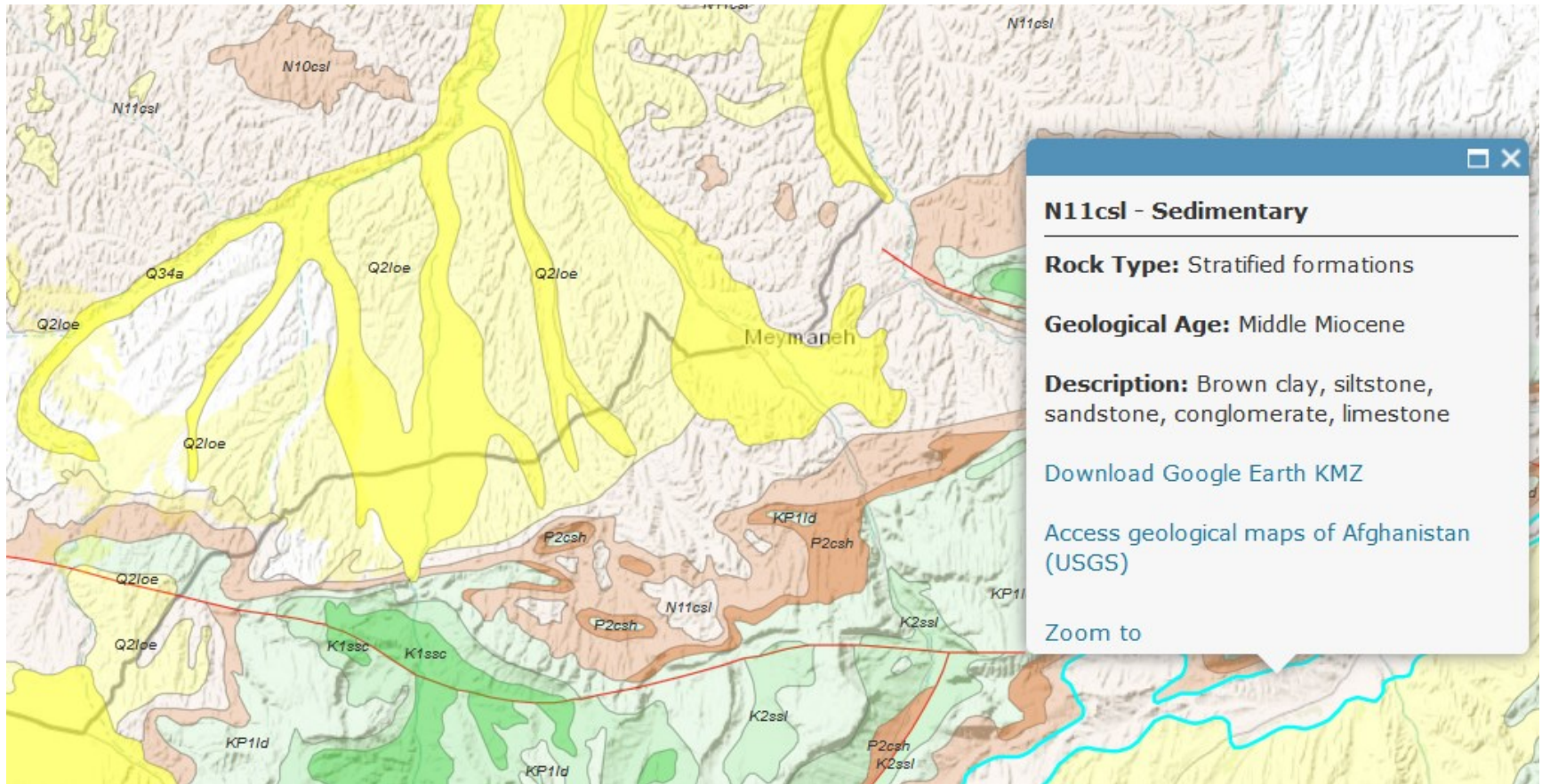
Blog: [*http://blogs.esri.com/esri/arcgis/category/arcgis-online/*](http://blogs.esri.com/esri/arcgis/category/arcgis-online/)

EXAMPLE OUTPUT BY END OF COURSE



EC map of Faryab

EXAMPLE OUTPUT BY END OF COURSE



Geology map of Faryab

What you will need for this course



Internet (Fast!)

Internet Browser

MS Access

MS Excel

ArcGIS 10.0

	A	B	C	D	E	F	G
1	WPoint_ID	WPCode	Type	WPname	Village	District	Longitude
2	2038	353702065131501	Drilled bor	Dar e Shak	Dar e Shak	Gurziwan	65.22075
3	2056	353705065134801	Drilled bor	Dara e Sha	Dara e Sha	Gurziwan	65.23009
4	2099	353711065032801	Drilled bor	Kaykawos	Kaykawos	Gurziwan	65.05764
5	2055	353712065131502	Drilled bor	Dara e Sha	Dara e Sha	Gurziwan	65.22075
6	2035	353719065131302	Drilled bor	Dara e Sha	Dara e Sha	Gurziwan	65.22025
7	2133	353731065034701	Drilled bor	Kikawas	Kikawas	Gurziwan	65.06296
8	2104	353742065035801	Drilled bor	Perech	Perech	Gurziwan	65.06614
9	2134	353749065041201	Drilled bor	Kikawas	Kikawas	Gurziwan	65.06985

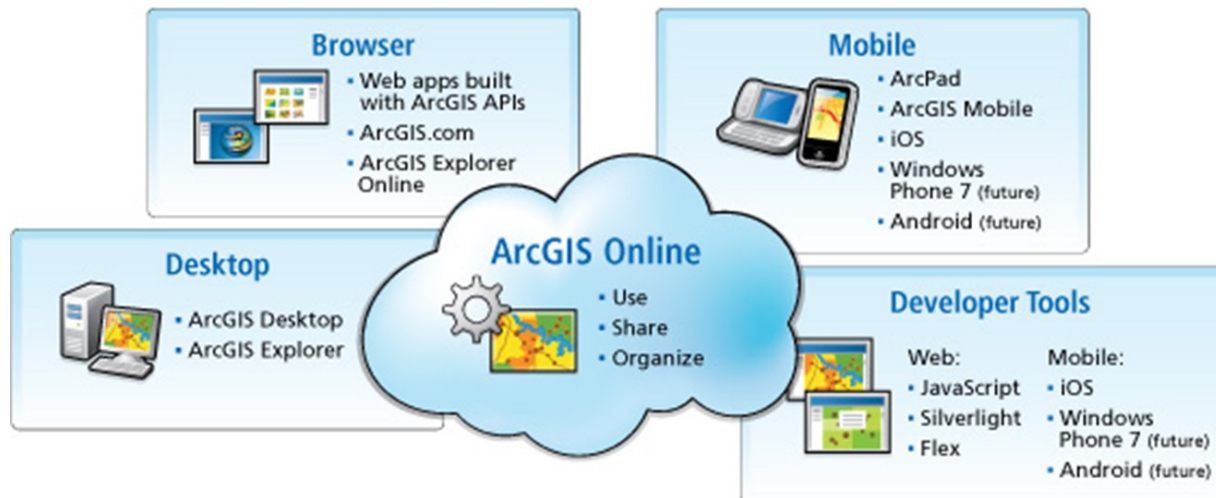
Your own data & coordinates

Tentative Course Schedule

Day	Date	Activity
1	Tuesday 09/12/2014	Opening & Introduction
		Presentation: Practical use of Online GIS Maps
		Practical 1: ArcGIS Online – data management
		Practical 2: ArcGIS Online – point features
2	Wednesday 10/12/2014	Practical 3: ArcGIS Online – polygon & polyline features
		Workshop: Discussion on the practical implementation of online GIS maps in Afghanistan.
		Presentation of certificates

GIS Course 4.5 – Practical use of Online Maps

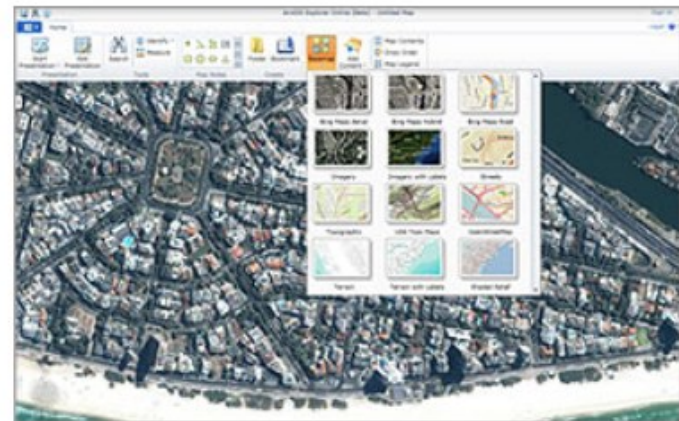
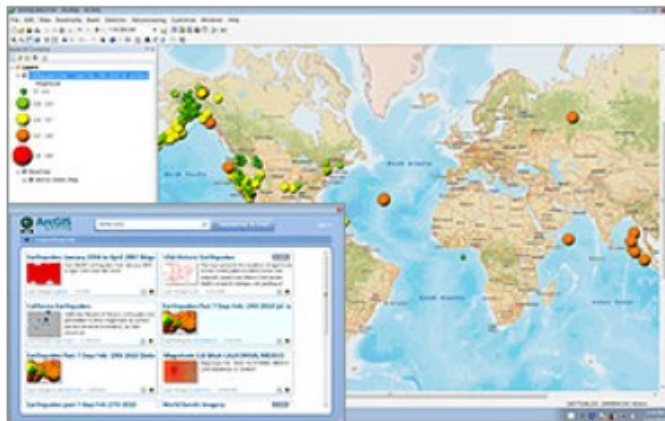
1. Review of ArcGIS Online
2. Practical tips for ArcGIS Online
3. Practicals



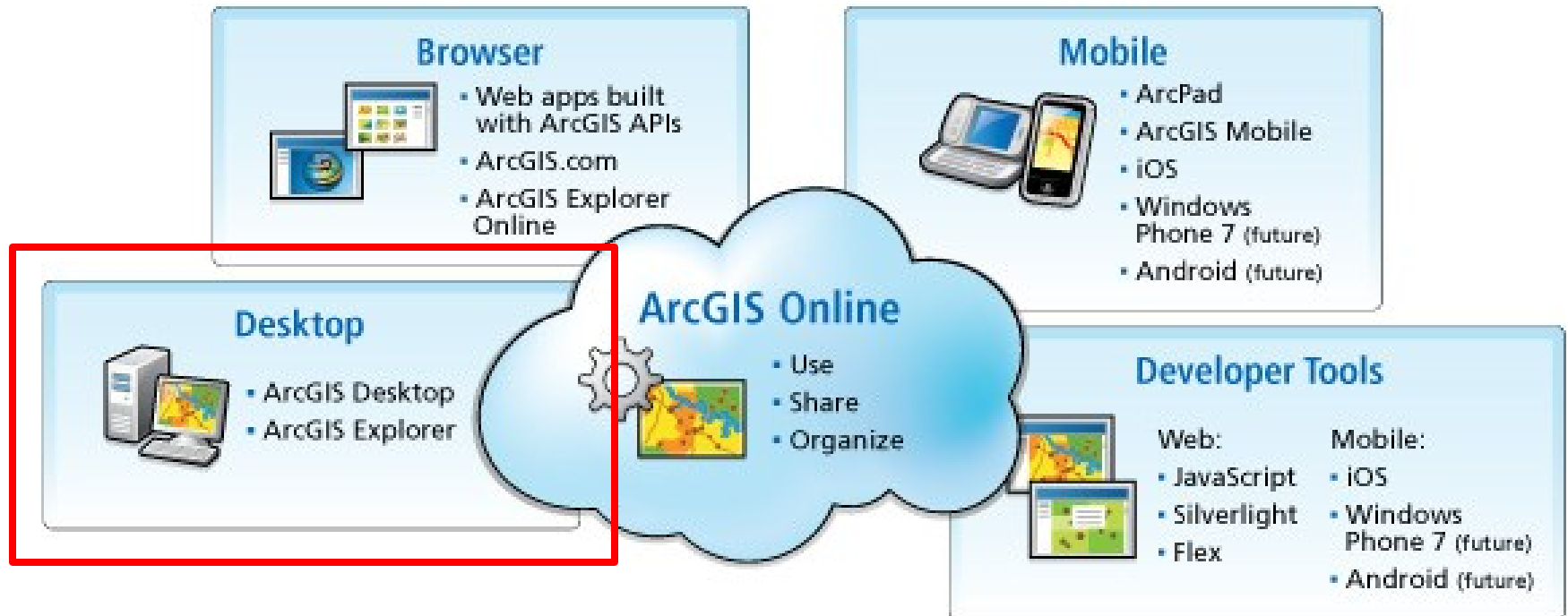
PART 1 – Review of ArcGIS Online

With ArcGIS Online you can:

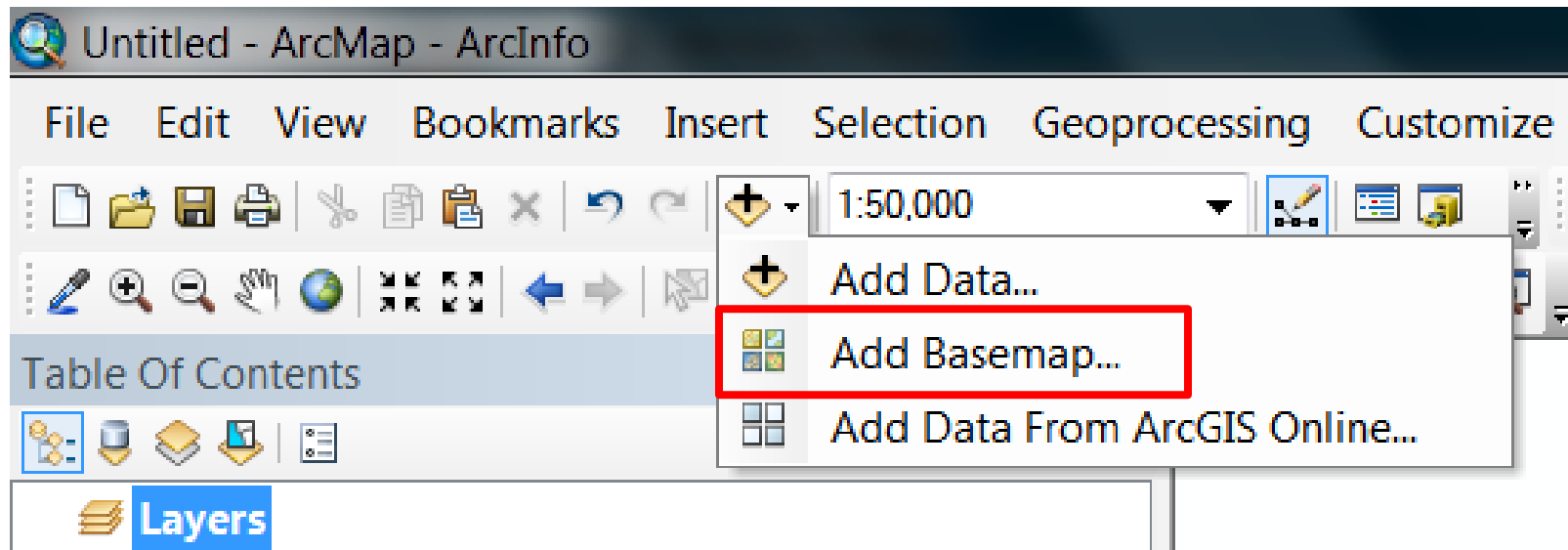
1. Upload and manipulate data
2. Map points, lines, and polygons
3. Create point and other thematic maps
4. Embed maps in web sites
5. Share maps and map layers in many ways



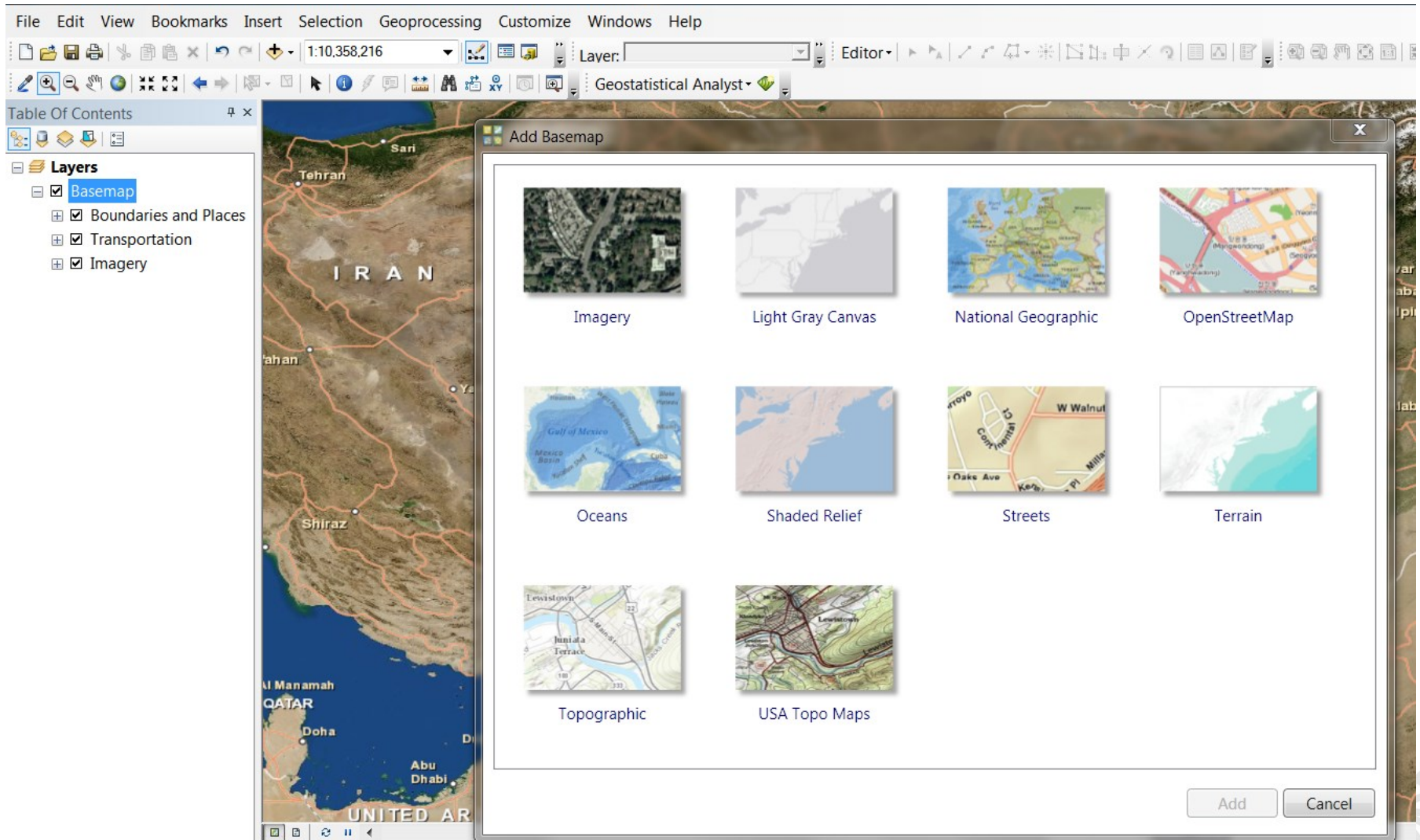
What is ArcGIS Online?



Access ArcGIS Online in ArcMap

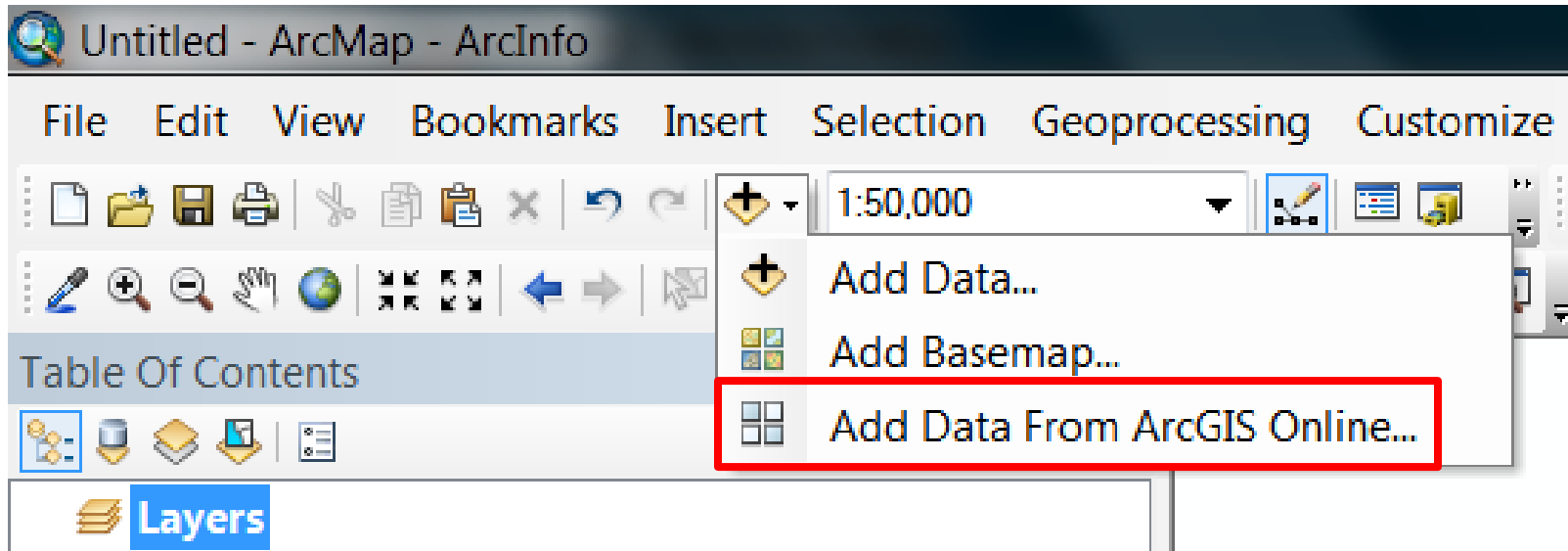


Access ArcGIS Online in ArcMap



52 228 37

Access ArcGIS Online in ArcMap



Access ArcGIS Online in ArcMap

Untitled - ArcMap - ArcInfo

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

Layer: Editor

Table Of Contents

Layers

ArcGIS online

afghanistan

Data Groups Sign in

Featured

Search: **afghanistan** Arranged by Relevance 44 Results

AGCHO Kabul Afghanistan Basemap

AGCHO Kabul Afghanistan Basemap

Map Service by [jcalkins_eoe](#) 06/12/2011 Details Add

Afghanistan_Geology

Afghanistan Geology

Map Service by [jcalkins_eoe](#) 27/11/2011 Details Add

AGCHO Kabul Afghanistan Image Overlay

AGCHO Kabul Afghanistan Image Overlay

Map Service by [jcalkins_eoe](#) 07/12/2011 Details Add

Afghanistan Civilian Aeronautical Layers

This overlay provides typical civilian aviation information layers for Afghanistan.

Map Service by [EnvironmentLO](#) 08/05/2014 Details Add

Hillshade

Multi-resolution hillshade.

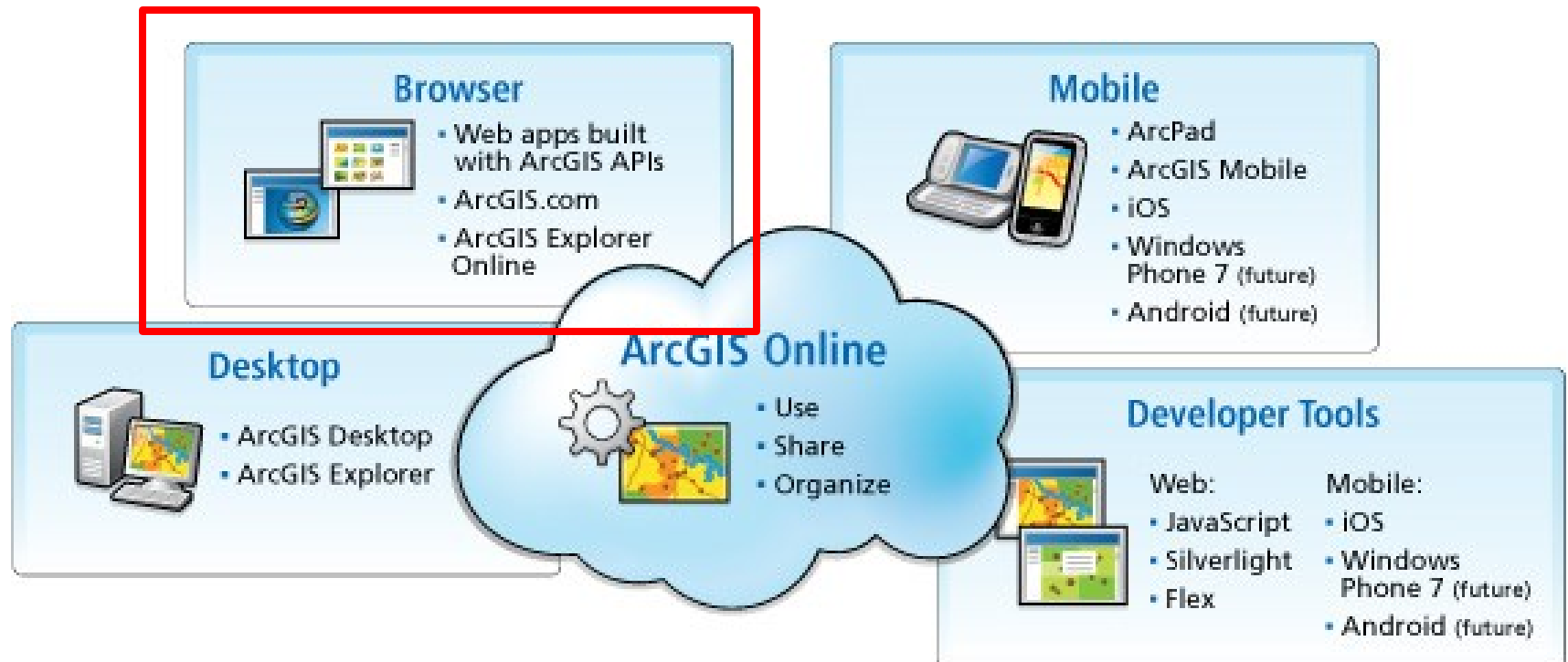
Image Service by [EnvironmentMO](#) 26/09/2013 Details Add

Digital Terrain Model

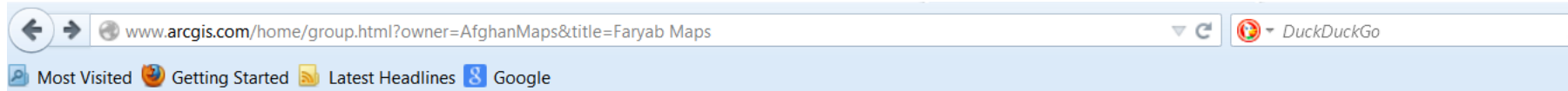
Multi-resolution Digital Elevation Model.

Image Service by [EnvironmentMO](#) 26/09/2013 Details Add

What is ArcGIS Online?



Access ArcGIS Online in your browser



JOIN THIS GROUP SHARE

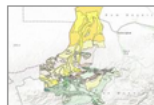
Maps of Faryab Province, Afghanistan ▼

Group Content

All Results

Maps
Layers
Apps
Tools
Files

☐ Show ArcGIS Desktop Content



[Open](#) ▾ [Details](#)

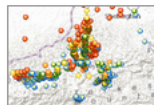
Faryab Geology Map

Geological Map of Faryab, Afghanistan

Web Map by AfghanMaps

Last Modified: 11 July 2014

★ ★ ★ ★ ★ (0 ratings, 0 comments, 116 views)



[Open](#) ▾ [Details](#)

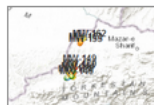
Faryab Groundwater Quality (EC)

Electrical Conductivity Map of Faryab Province, Afghanistan.

Web Map by AfghanMaps

Last Modified: 10 September 2014

★ ★ ★ ★ ★ (0 ratings, 0 comments, 82 views)



Faryab Monitoring Wells

Monitoring Wells in Faryab Province, Afghanistan

Web Map by AfghanMaps

Last Modified: 11 September 2014

★ ★ ★ ★ ★ (0 ratings, 0 comments, 82 views)

Facebook Twitter

Group Details

AfghanMaps

Status: public

Contributors: All me

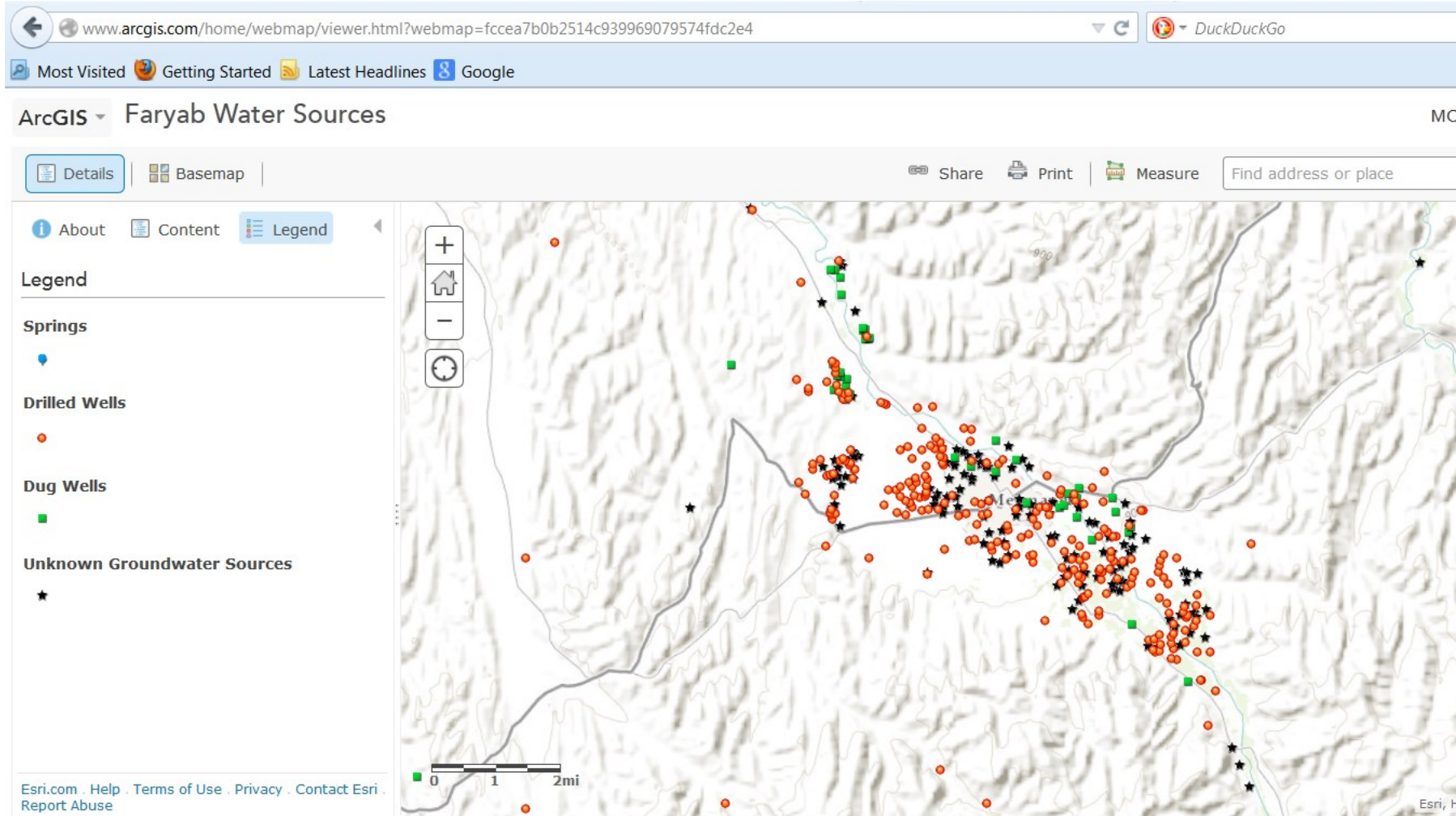
Tags:

Faryab, Afghanistan

1 Member

AfghanMaps


Access ArcGIS Online in your browser



Access ArcGIS Online in your browser

ArcGIS ▾ Faryab Water Sources

Details | Basemap | Share | Print | Measure



(2 of 2)

Imagery provider: DigitalGlobe

DATE (YYYYMMDD)	20110718
RESOLUTION (M)	0.50
ACCURACY (M)	10.20
DATA SOURCE	WV02

[Zoom to](#)

Access ArcGIS Online via a web site

Project News Flash - Mozilla Firefox

Project News Flash

norplan.af/PageNewsflash.html

DuckDuckGo

Norplan in Afghanistan from 2012

HOME OBJECTIVE ACTIVITIES OUTPUTS FARYAB GENDER KEY ACTORS NEWS CONTACT US


RuWatSIP STAFF COORDINATION HYDROGEO. GIS-MIS WAT-SAN TRAINING MANAGEMENT PROGRESS

PROJECT NEWS.

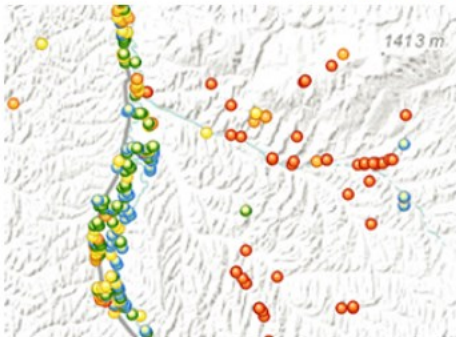
In this section, key project and sector events are listed for update of project progress.

Key issues/dates:

Project start Jan 2012



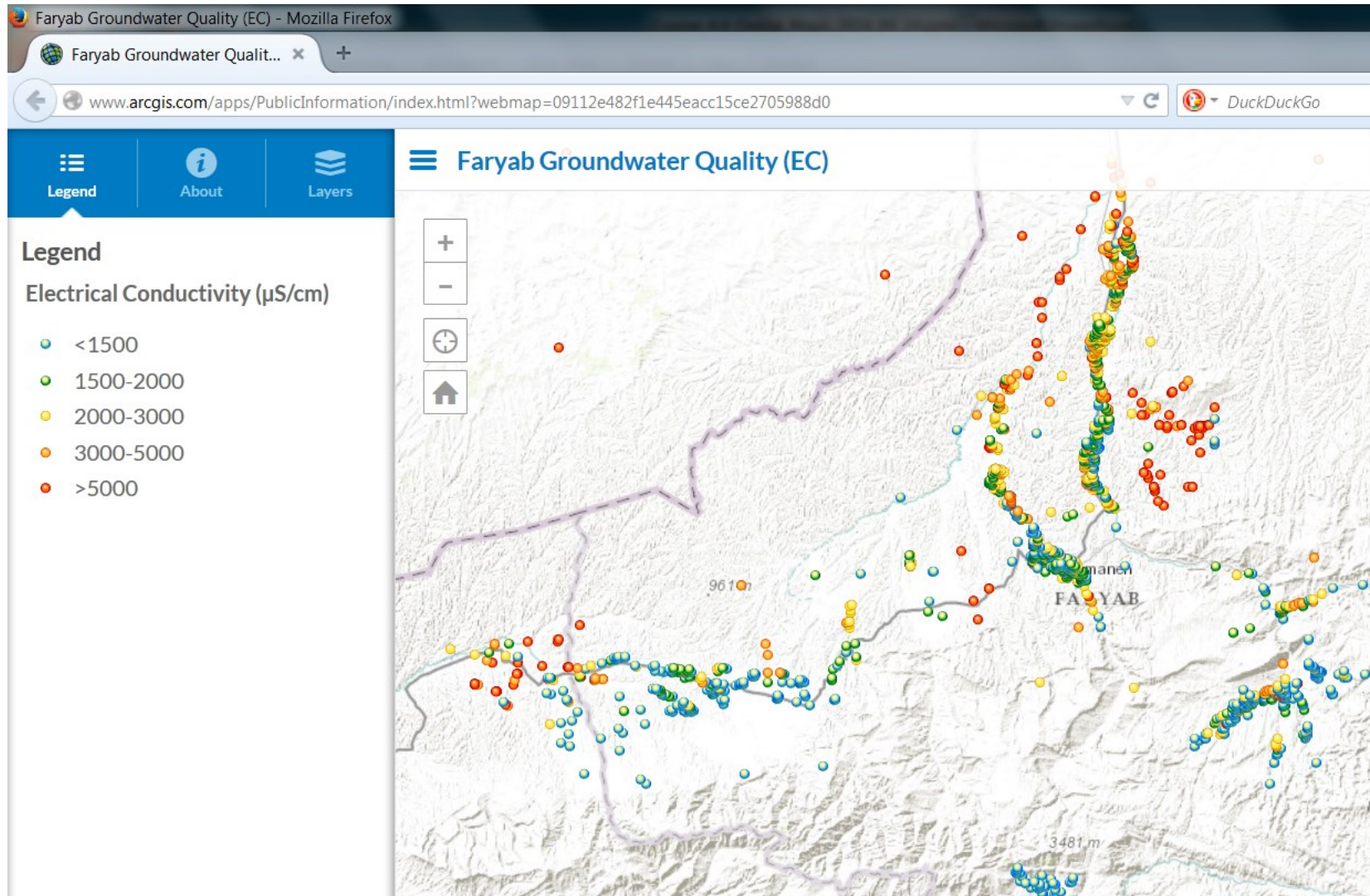
Web Maps Online : September 2014



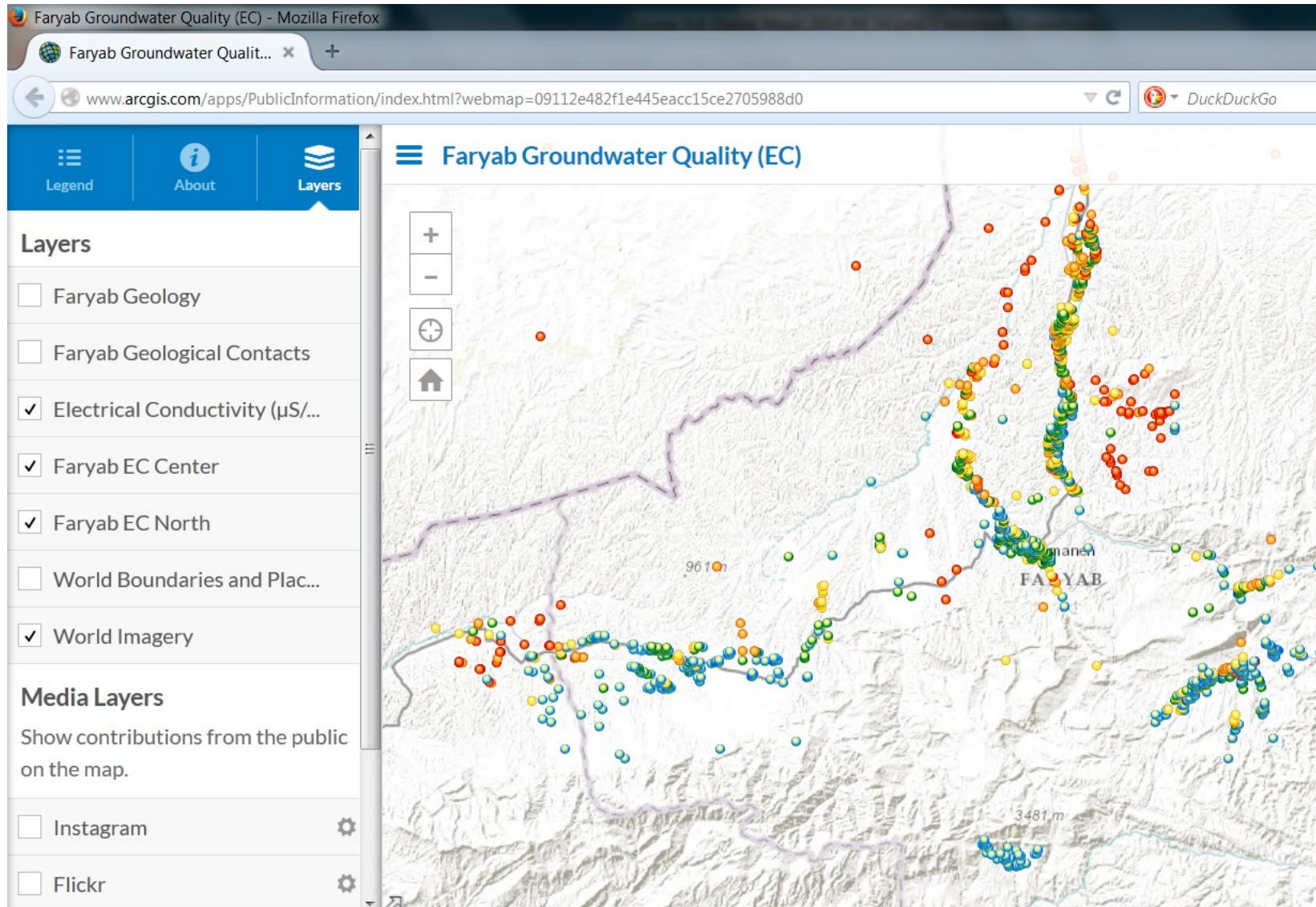
Now the first web maps have been put online. At the moment the online maps cover location and type of water points, depth to static water level, electrical conductivity and geology. Where other information is available such as well logs and water quality analysis these can be accessed online through direct links.

As you zoom in below scale of 1:80,000, high resolution images will appear to facilitate navigation and show where water points are relative to features such as building, canals and roads. Click to view links to [online maps](#)

Access ArcGIS Online via a web site



Access ArcGIS Online via a web site

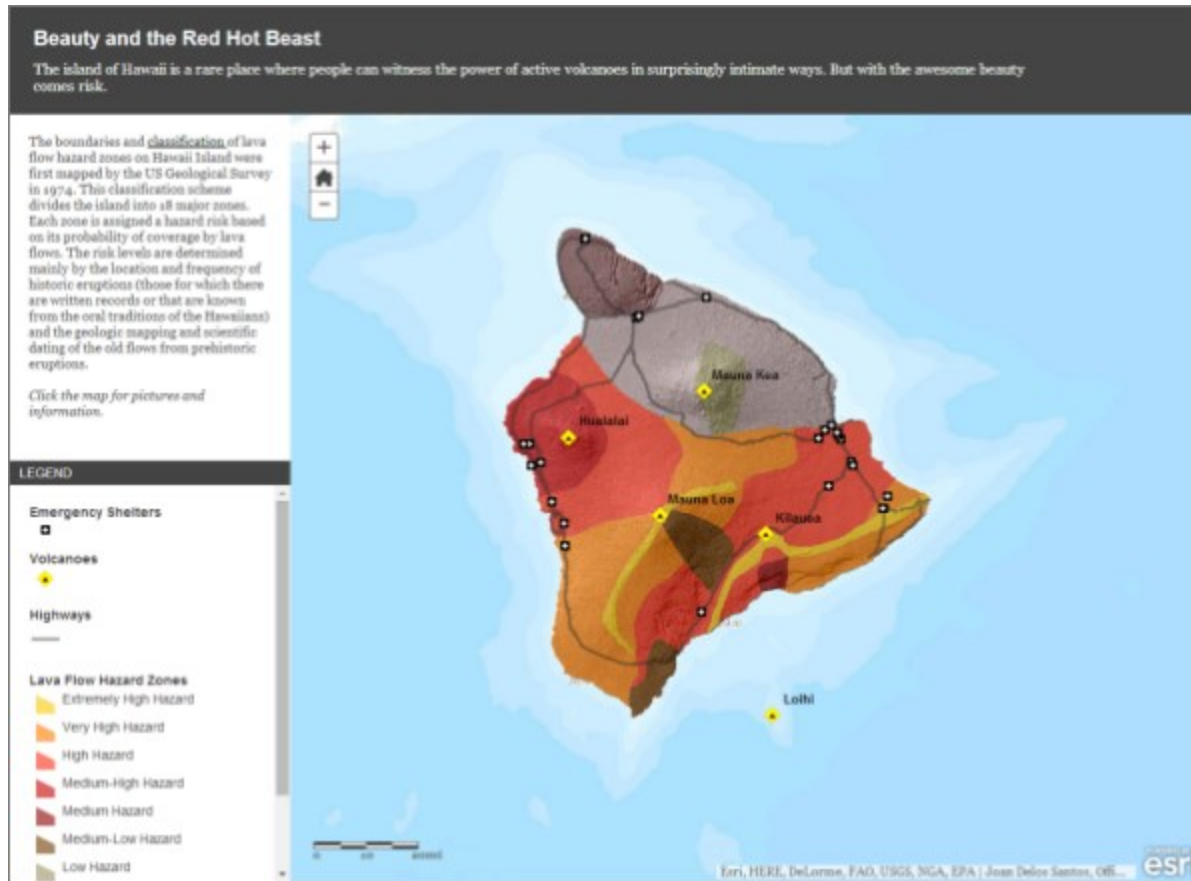


GIS Course 4.5 – Practical use of Online Maps

1. Review of ArcGIS Online
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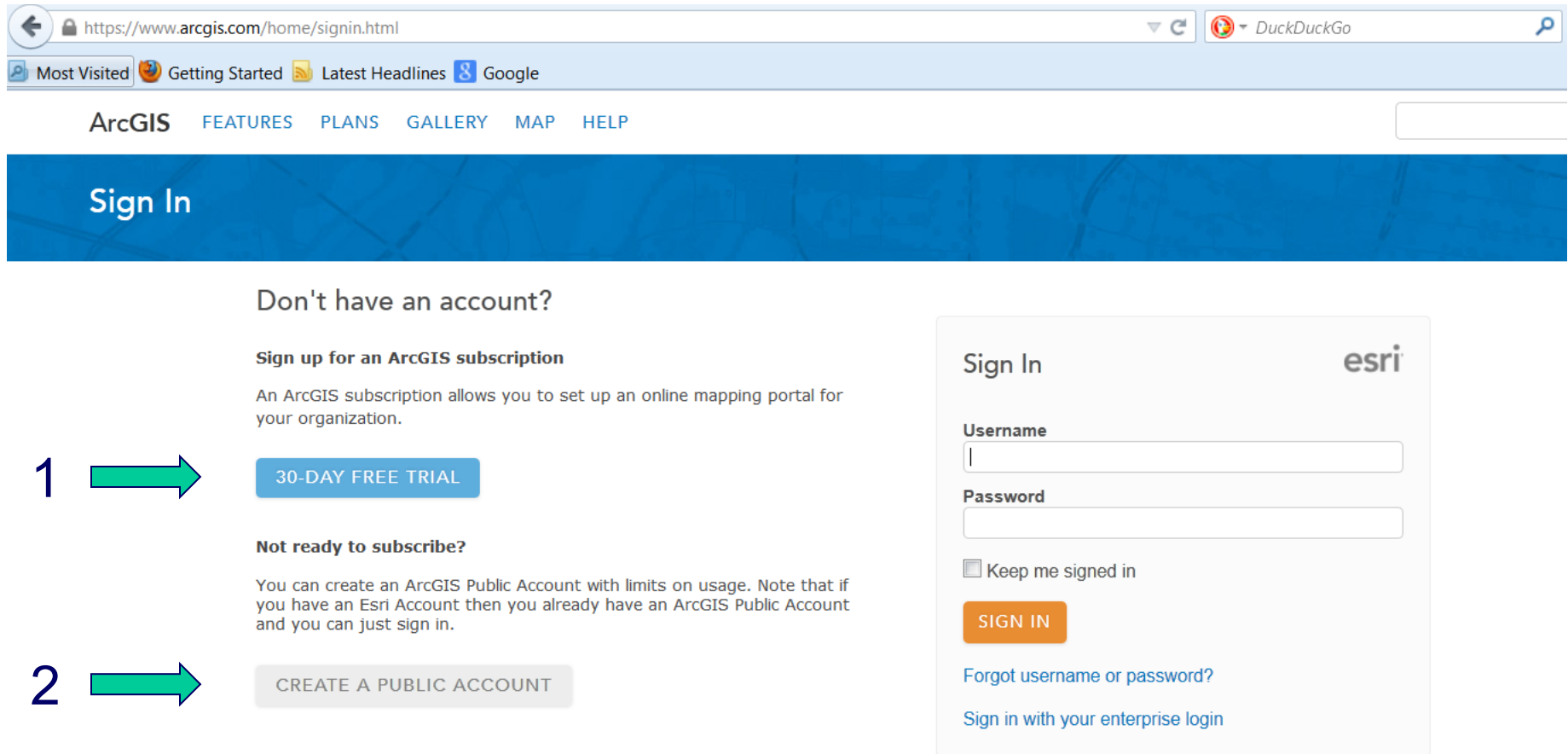


Tip No. 1 : Lean ArcGIS Online Using the tutorial!



<http://learn.arcgis.com/en/projects/get-started-with-arcgis-online/>

Tip No. 2: Open an ArcGIS Online Account



The screenshot shows the ArcGIS Online sign-in page. A green arrow labeled '1' points to the '30-DAY FREE TRIAL' button. A second green arrow labeled '2' points to the 'CREATE A PUBLIC ACCOUNT' button. To the right, a detailed view of the sign-in form is shown, including fields for Username and Password, a 'Keep me signed in' checkbox, and a 'SIGN IN' button. Below the form are links for 'Forgot username or password?' and 'Sign in with your enterprise login'.

1 →

2 →

Don't have an account?

Sign up for an ArcGIS subscription

An ArcGIS subscription allows you to set up an online mapping portal for your organization.

30-DAY FREE TRIAL

Not ready to subscribe?

You can create an ArcGIS Public Account with limits on usage. Note that if you have an Esri Account then you already have an ArcGIS Public Account and you can just sign in.

CREATE A PUBLIC ACCOUNT

Sign In **esri**

Username

Password

☐ Keep me signed in

SIGN IN

[Forgot username or password?](#)

[Sign in with your enterprise login](#)

1. Subscription account (\$\$\$)
2. Public account

ArcGIS Online accounts

	Subscription (Commercial and Non-Commercial Use)	Public Account (Non-Commercial Use Only)
	Free Trial More Info »	Sign Up Free More Info »
Access, share, and manage content	✓	✓
Add your own data to maps	✓	✓
Add Geometry Service to maps & apps	✓	✓
Store maps, apps, and data in Esri's cloud	✓	2 GB Limit
Create private groups	✓	
Make maps in Excel with Esri Maps for Office	✓	
Perform spatial analysis	✓	
Add World Geocoding to maps & apps	✓	
Add World Network Analysis to maps & apps	✓	
Access ArcGIS Portal and Web Mapping APIs	✓	
Publish hosted services in Esri's cloud	✓	
Manage user roles, access, and security	✓	
Monitor usage information	✓	
Add your organization's logo and banner to your ArcGIS Online homepage	✓	
Display your organization's maps on your ArcGIS Online homepage	✓	
Create a custom URL for your ArcGIS Online homepage	✓	
Includes Technical Support	✓	
	Free Trial More Info »	Sign Up Free More Info »

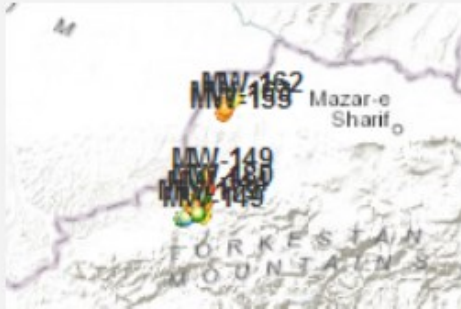
ArcGIS Online accounts – annual costs

Subscription Plan	Users Included (up to)	Service Credits Included	Price
Level 1	5	2,500	\$2,500
Level 2	50	10,000	\$10,000
Level 3	100	17,500	\$17,500

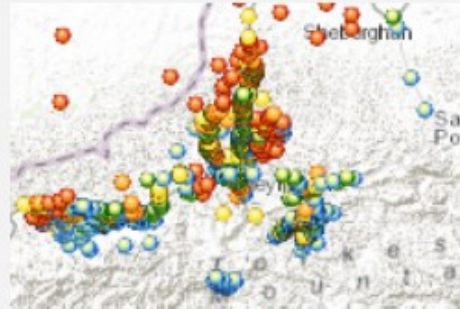
Service

Map Tile Generation	1 credit per 1,000 tiles generated
Feature Services Storage	2.4 credits per 10 MB stored per month
Tile and Data Storage	1.2 credits per 1 GB stored per month
Geocoding	40 credits per 1,000 geocodes
Simple Routes	0.04 credits per simple route
Optimized Routes	0.5 credits per optimized route
Drive-Times (Service Areas)	0.5 credits per drive-time
Closest Facilities	0.5 credits per closest facilities route
Multi-Vehicle Routes (VRP)	1 credit per multi-vehicle route
Demographic and Lifestyle Maps	10 credits per 1,000 map requests
Data Enrichment	10 credits per 1,000 data variables (attributes)
Infographics	10 credits per 1,000 views
Reports	10 credits per report
Spatial Analysis	1 credit per 1,000 features

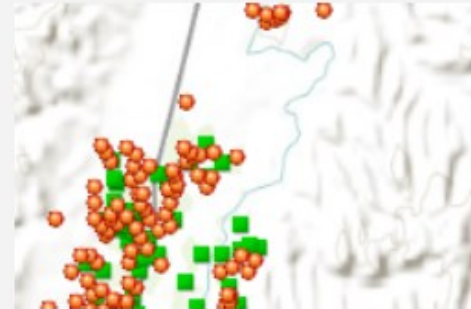
All online Faryab maps use a free Public Account



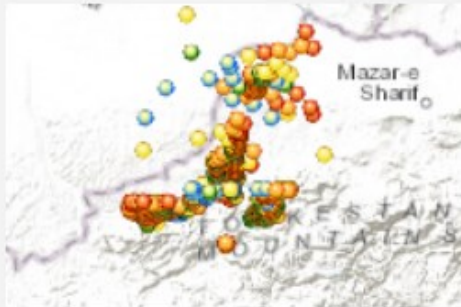
Faryab Monitoring Wells



Faryab Groundwater Quality ...



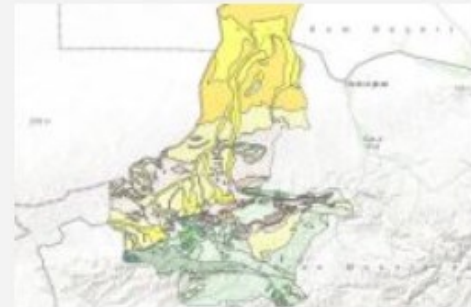
Faryab Water Sources



Faryab Rest Water Levels



Faryab Wells With Logs



Faryab Geology Map

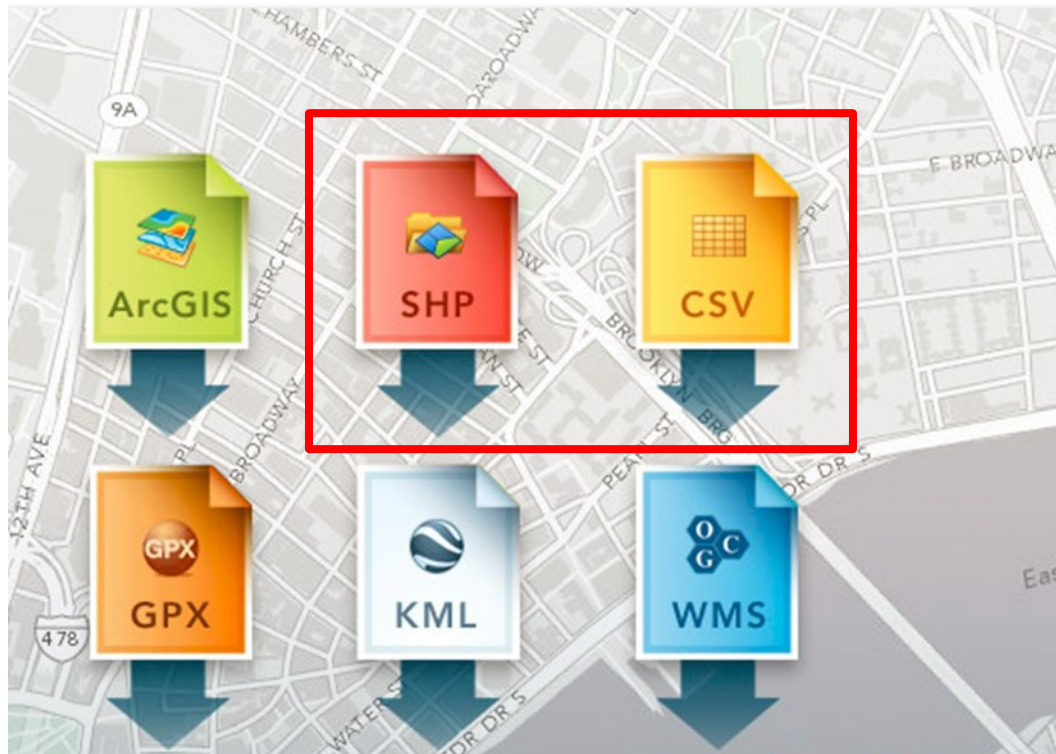
Find them in the **Faryab Maps** group



Tips for ArcGIS Online Accounts

3. Use a training account until you are “professional”. These accounts are automatically deleted so there is no digital clutter left in the cloud.
<http://learngis.maps.arcgis.com/home/index.html>
4. Open a Public Account once you are “professional”. It is free and can perform all the key functions you will need to make a map.
<https://www.arcgis.com/home/signin.html>
5. Give your Public account a sensible name so people know who you represent:
e.g. *RuWatSIP_maps*.

ArcGIS Online data types



Tips for using free Public Accounts:

6. You can upload a maximum number of 1,000 data points using latitude and longitude coordinates. These must be in decimal degrees.
7. You cannot upload rasters.
Connect to WMS instead.
8. Be careful with date fields.
They should be in the yyyy-mm-dd format.
9. Shapefiles should be in a zipped archive and have an uncompressed size of <10MB, and contain <1000 features.
10. An online map should have <10,000 features in total.

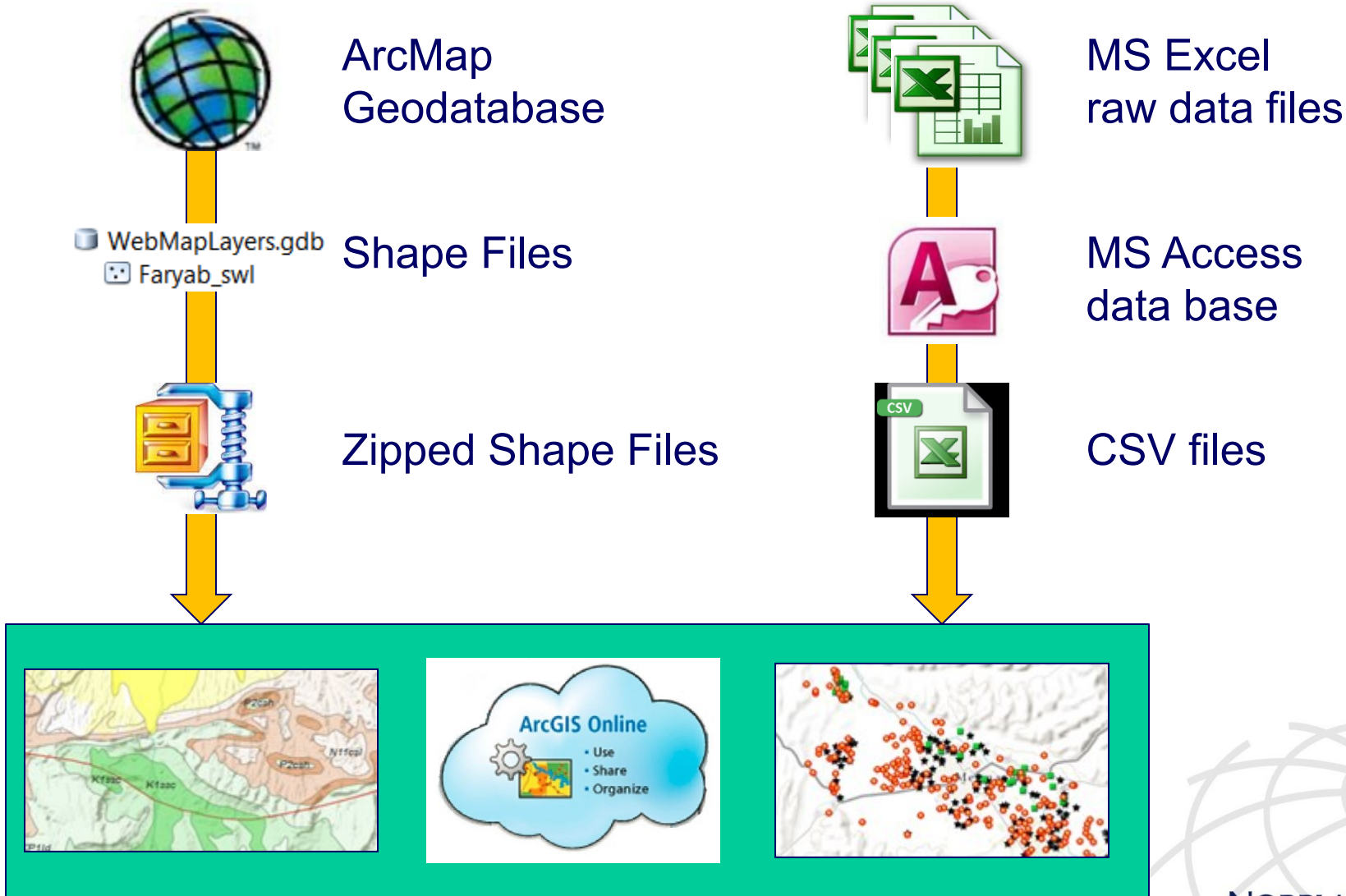


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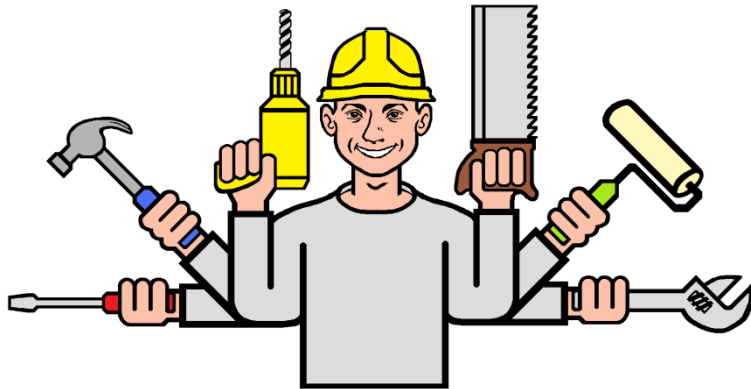


Practical 1: Data Management in ArcGIS Online

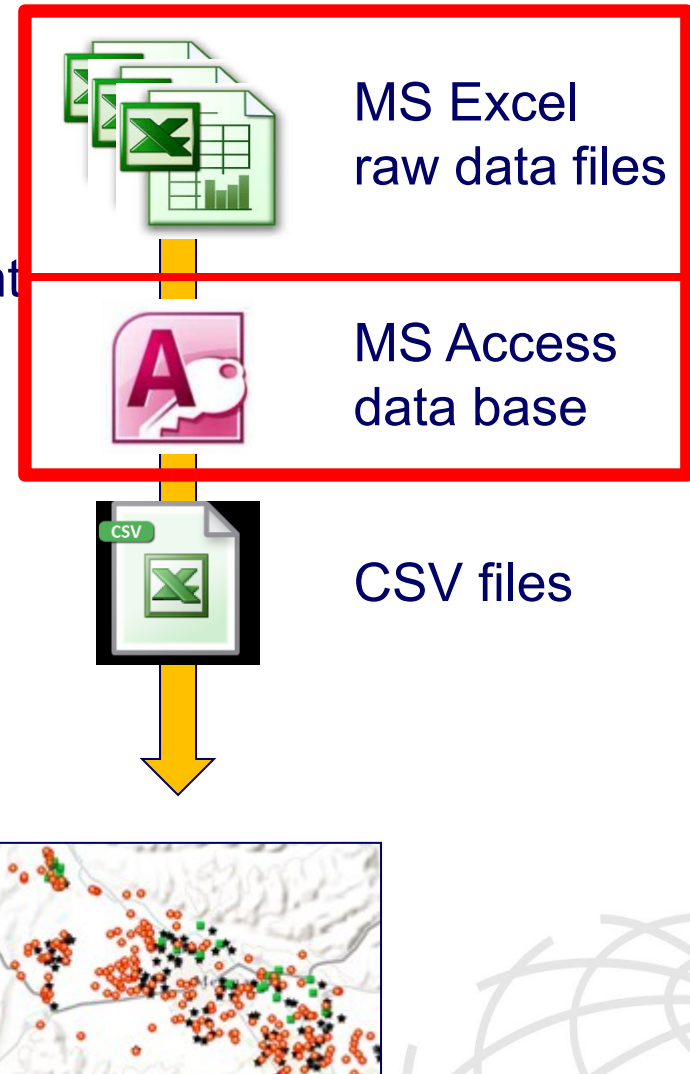


Practical 1 – Point data features – Skills needed:

- 4.12 Data Management 2 (Excel)
- 4.17 Data Management 3 (Access)
- 4.7 Introduction to Data Management



Picture source: <http://www.skilledhands.biz/SKILLED%20HANDS%20LOGO%20GREY%20SHIRT.png>



Point data features – Data Management

1. Clean data in Excel.
Headers \leq 10 characters
2. Import to Access.
3. Extract only data you really need
using queries.
4. Export data from Access to Excel.
5. Export data from Excel to CSV.
6. Upload CSV to ArcGIS Online.



MS Excel
raw data files



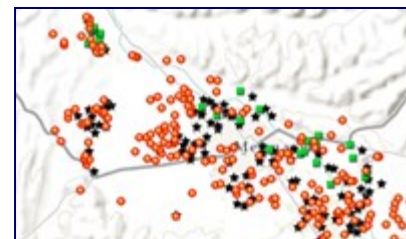
MS Access
data base



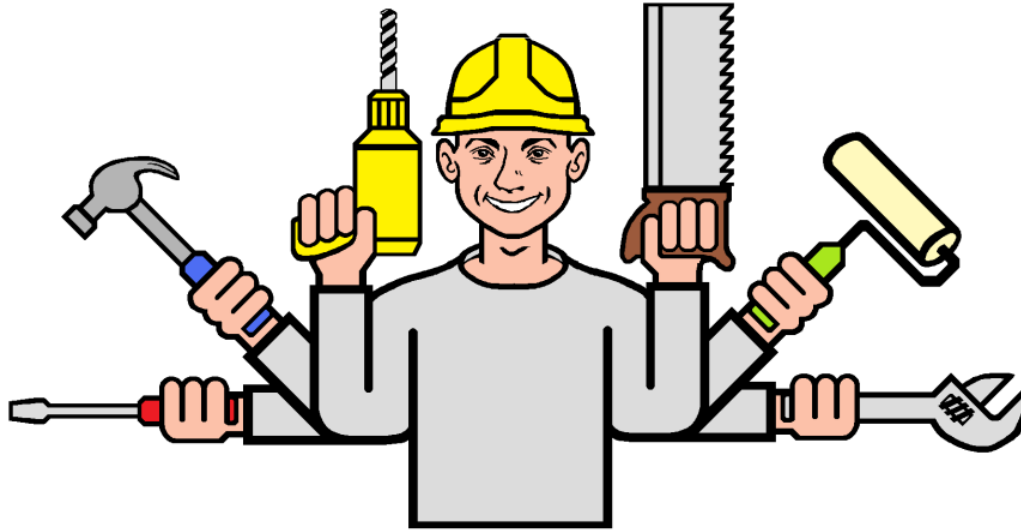
MS Excel files



CSV files



Practical 1 – Data Management for Point Features

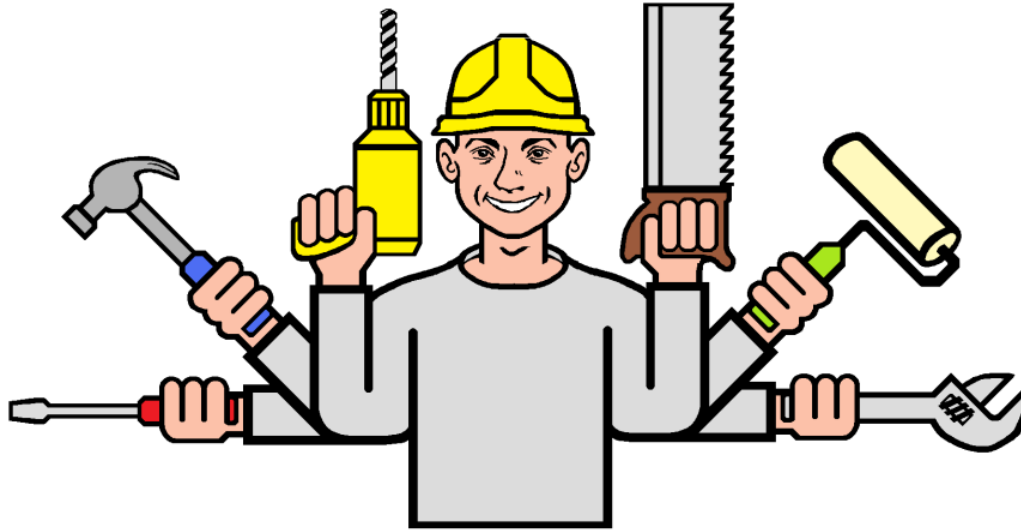


Expected output:

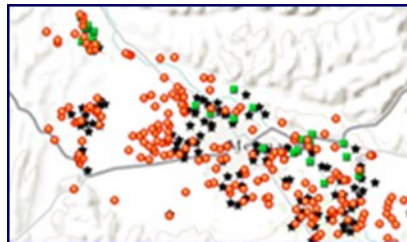


Clean CSV files

Practical 2 – ArcGIS Online Point Features

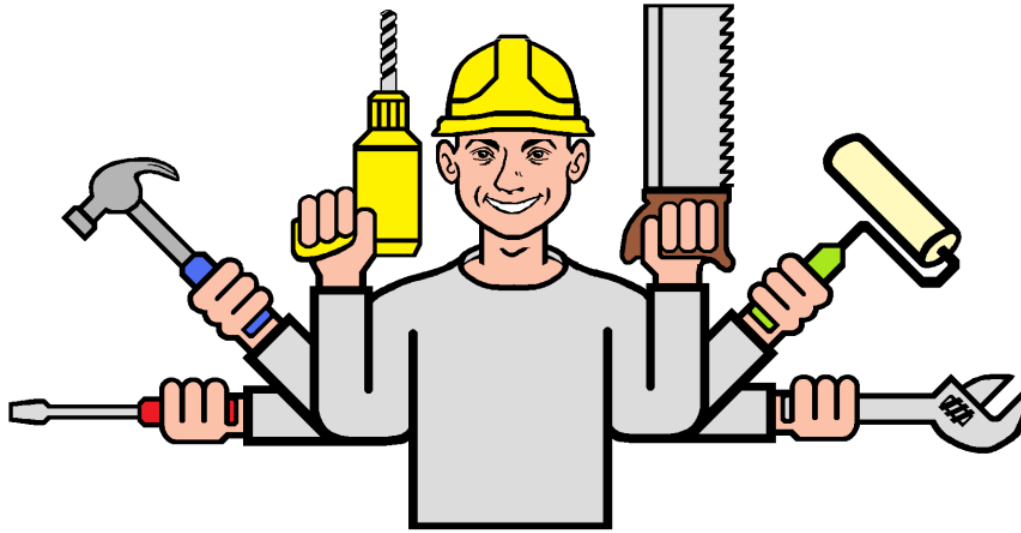


Expected output:

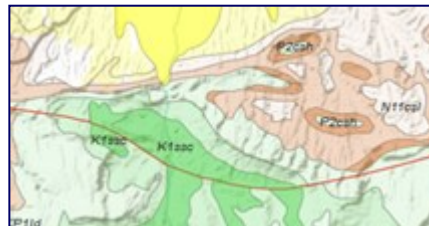


ArcGIS Online
Map of point
features

Practical 3 – ArcGIS Online Poly/line/gon Features



Expected output:



ArcGIS Online Map
of polygon &
polyline features

Workshop:

Discussion on the practical implementation of online GIS maps in Afghanistan



**Thank you
for your attention!**