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A WaterWorld Hydrological Baseline for CAZ

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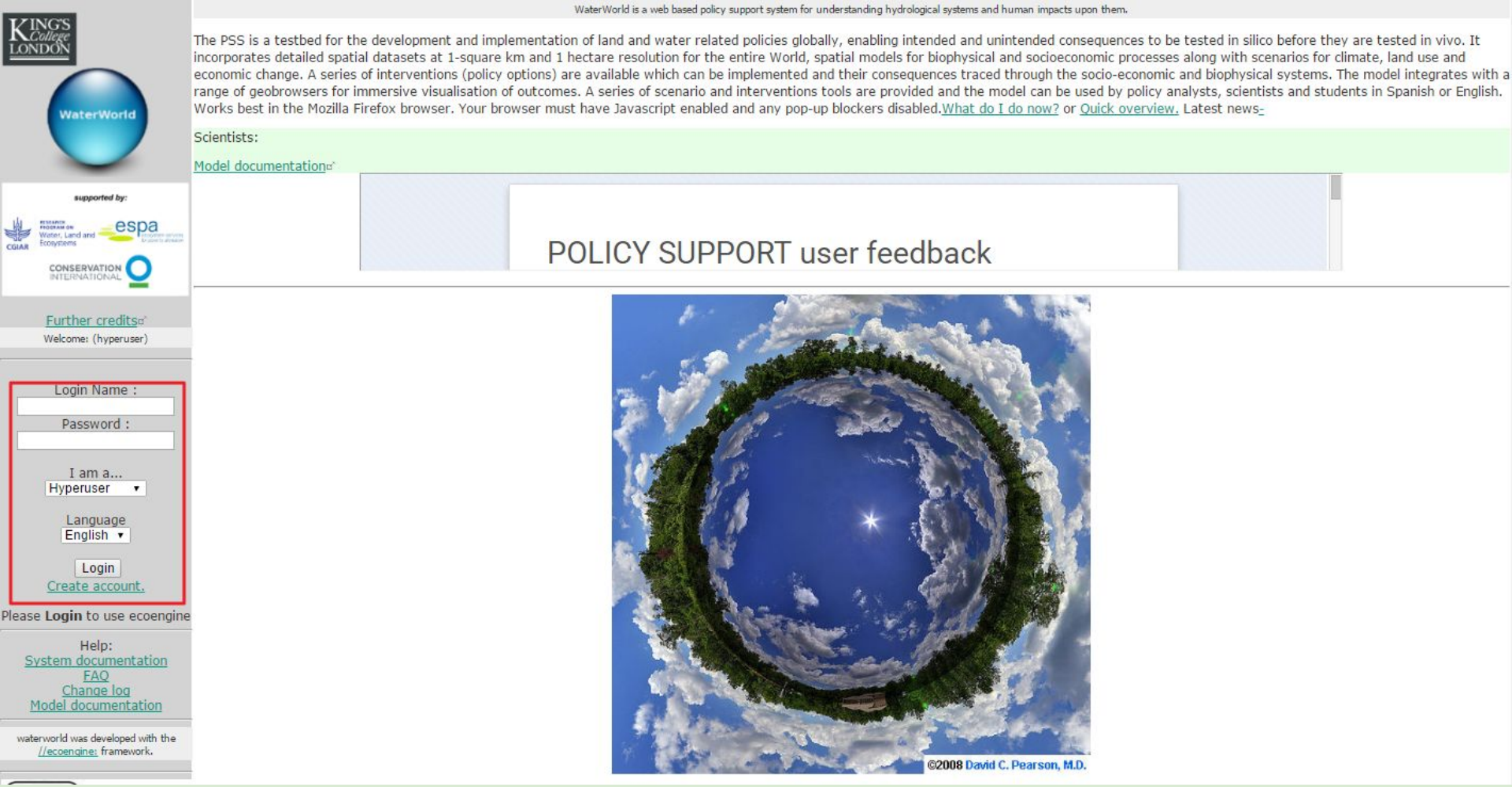
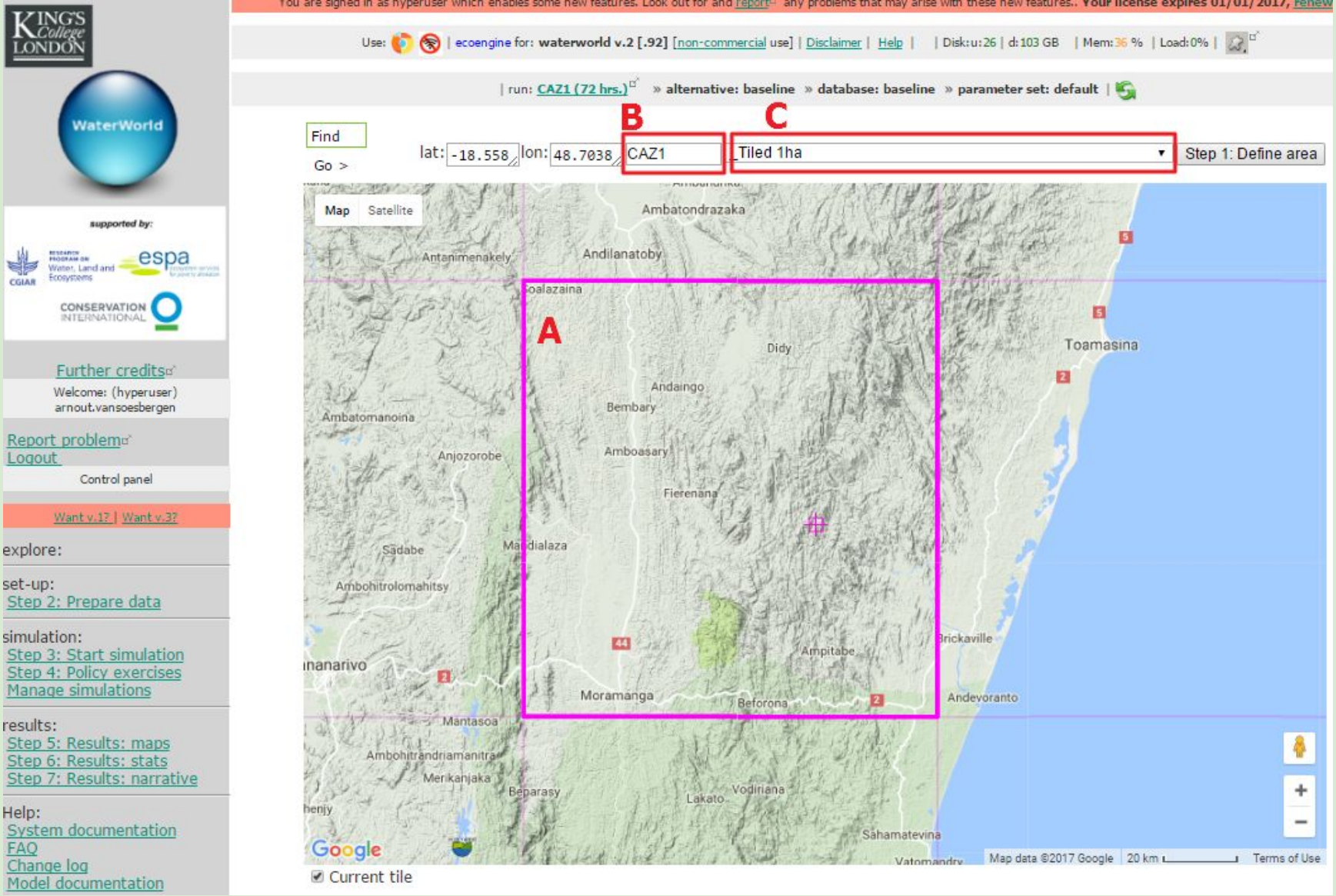
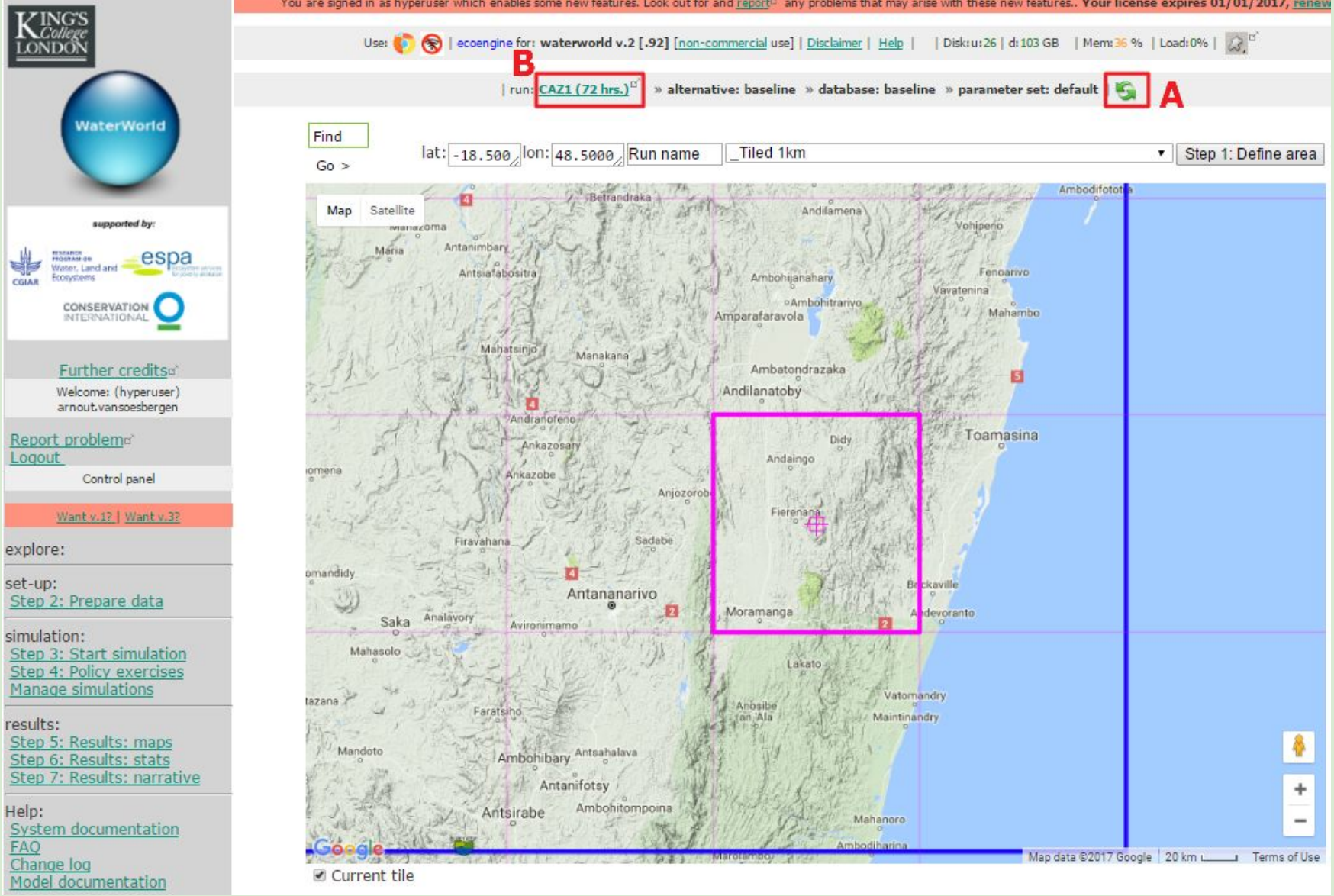


1. **Open Firefox or Chrome browser (system does not work with IE).**
2. **Go to http://www.policysupport.org/waterworld/training/level-2**
3. **Normally you would access using http://www.policysupport.org/waterworld**
4. **Select your assigned training server and click the link. Type your assigned username and password for use today**
5. **Choose hyperuser**
6. **Hit the Login button**

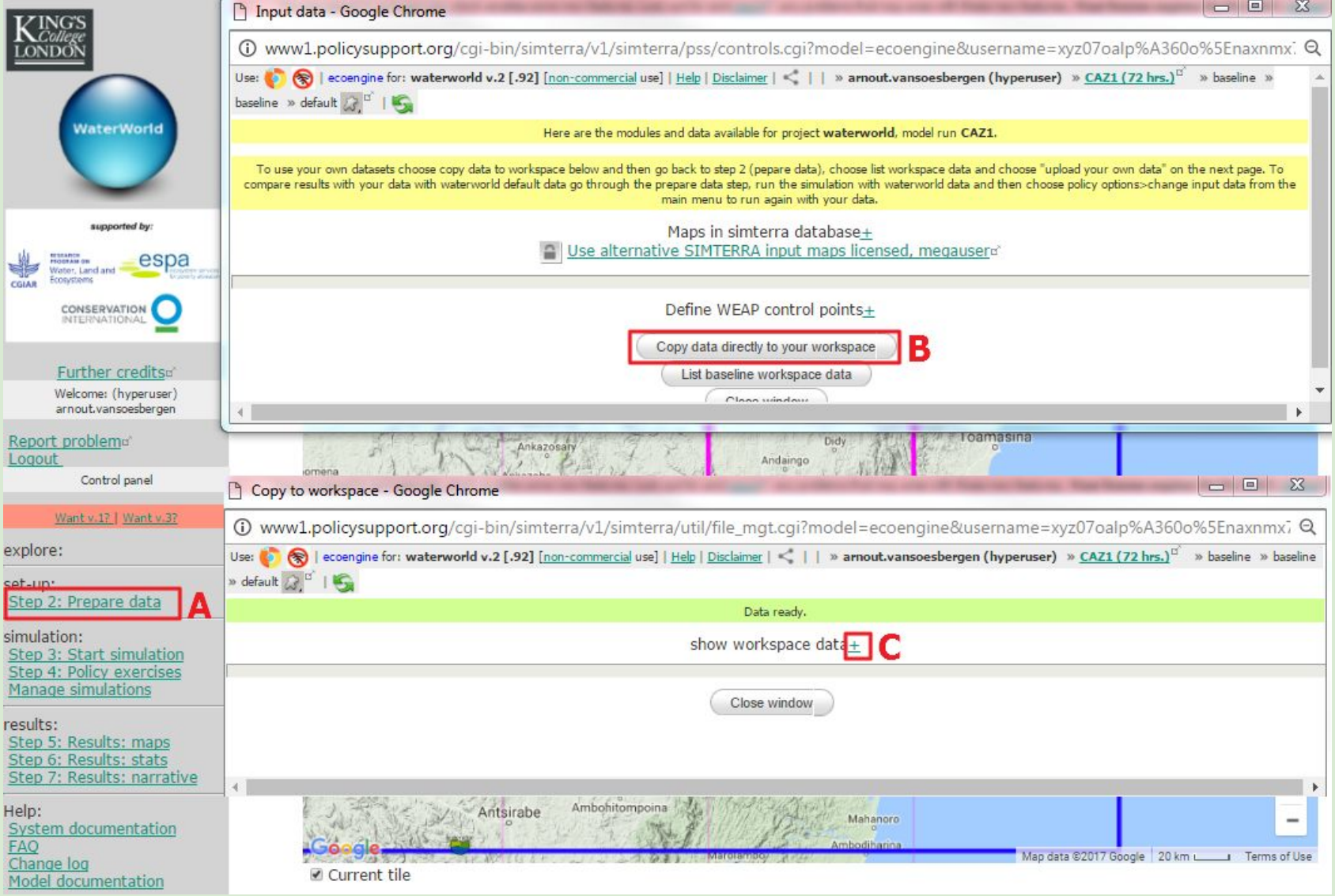


1. **Step 1: select the region of interest by moving the map within the highlighted purple tile (A)**
2. **At (B) give the run a name (e.g. CAZ1)**
3. **Use the dropdown list at (C) to select 'Tiled 1ha' to select 1-ha resolution**
4. **Click on 'Step 1: Define area'**



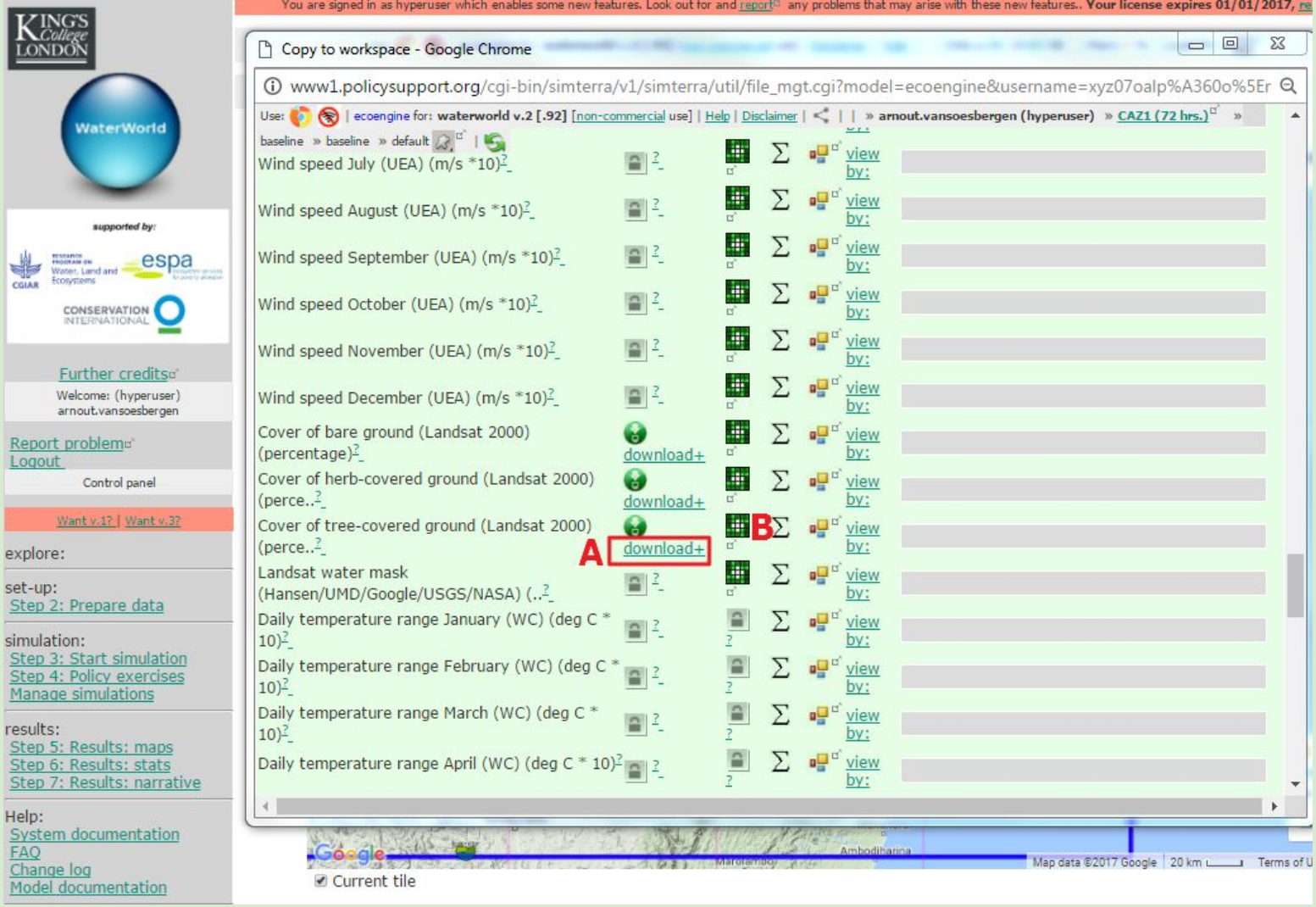
1.The map will re-center on your area of interest (if it does not, click the green refresh button at (A).

2.Your run name will change. Click to see a window with details of the run (B)



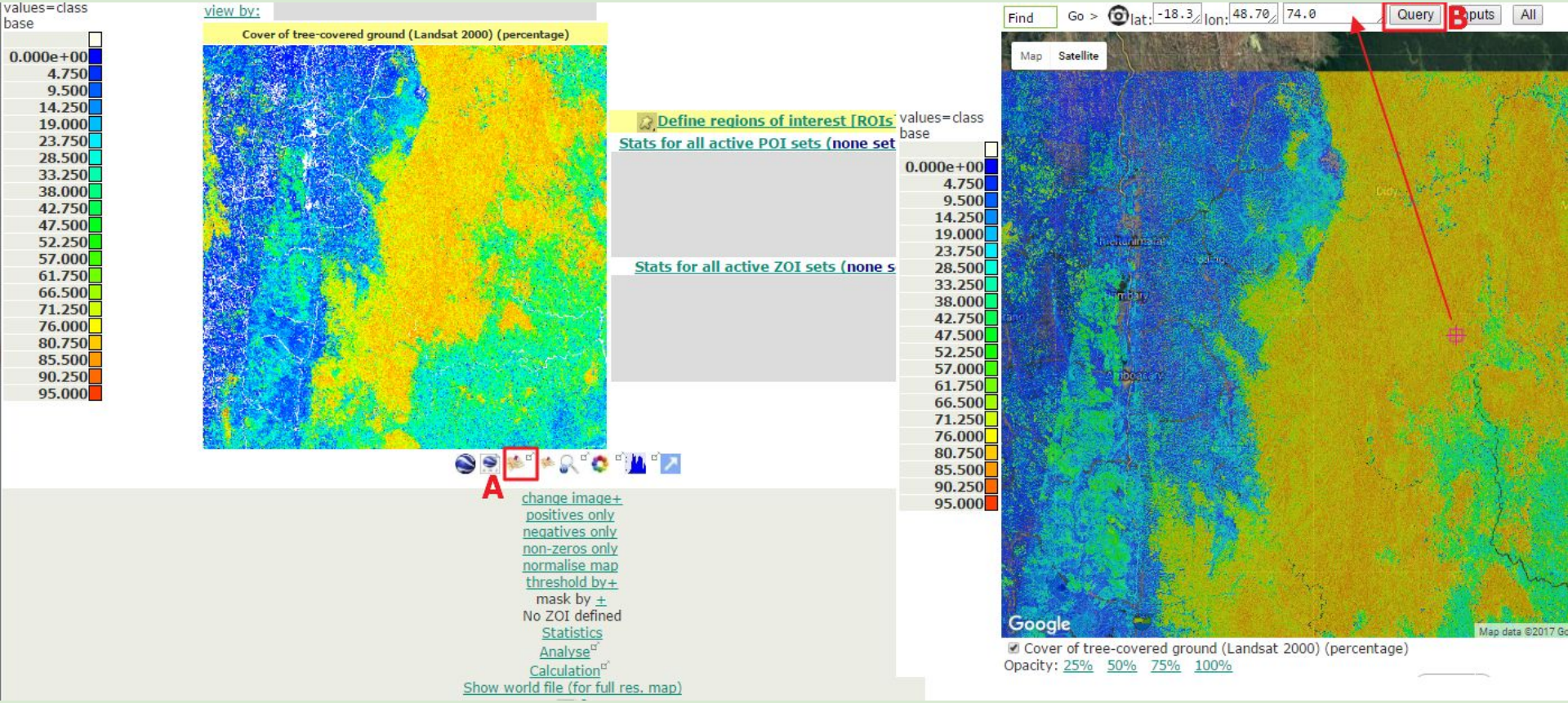
Step 2: prepare data

1. **Click on the Step 2: Prepare data button (A)**
2. **In the window that opens, click on 'Copy data to your workspace' (B). The system will now take a few minutes to gather and copy the necessary data to your workspace on the servers. Do not refresh the page or it will start again. When the data is ready you can see the inputs by clicking the + (C)**



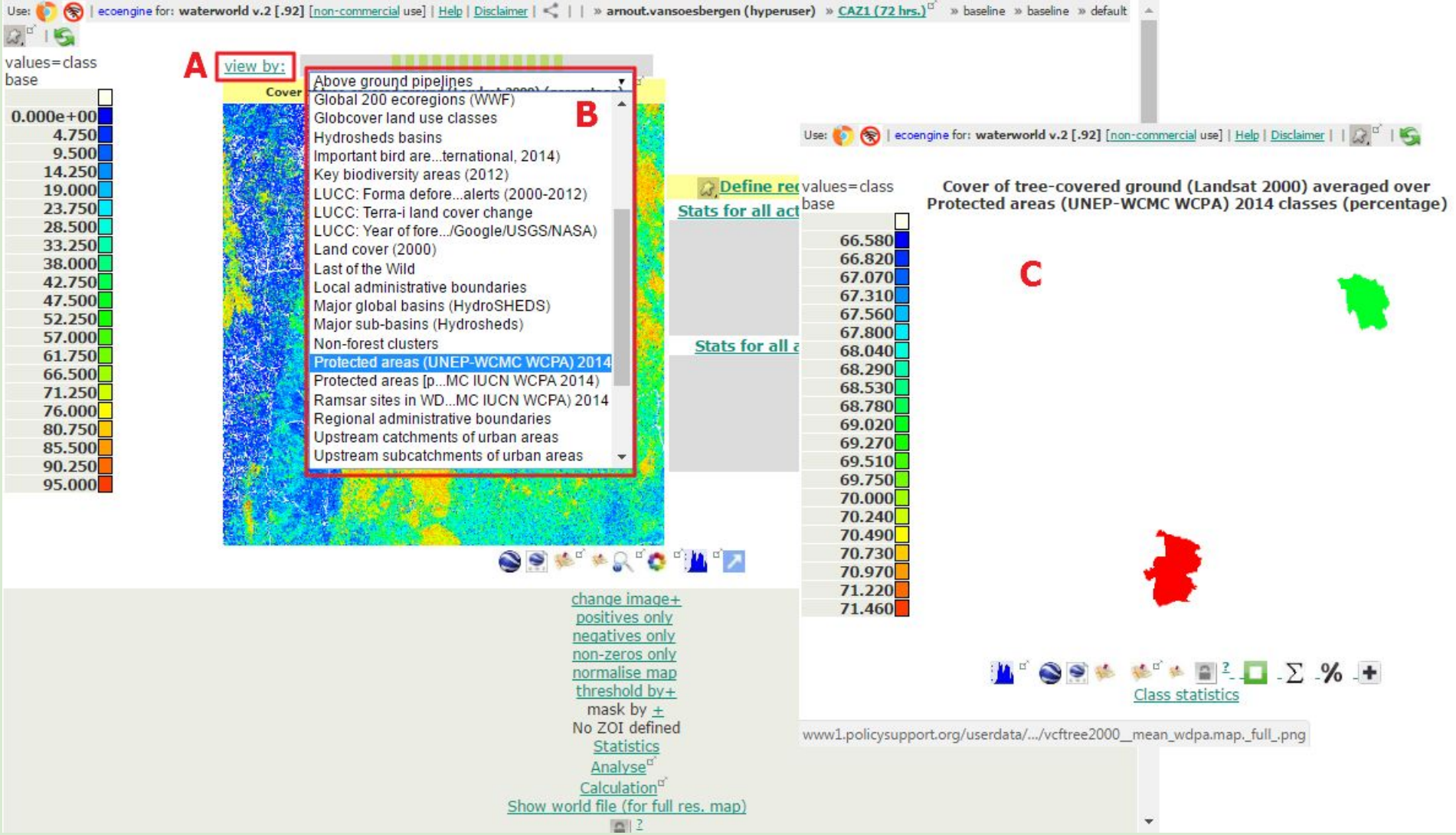
Step 2: prepare data

1. **The model requires more than 140 maps to run**
2. **Those that we produce or have license to redistribute can be downloaded in GIS formats (A) and visualised (B, also see next slide) from here**
3. **Many cannot be redistributed but we are working with data providers to enable at least visualisation of the input datasets**



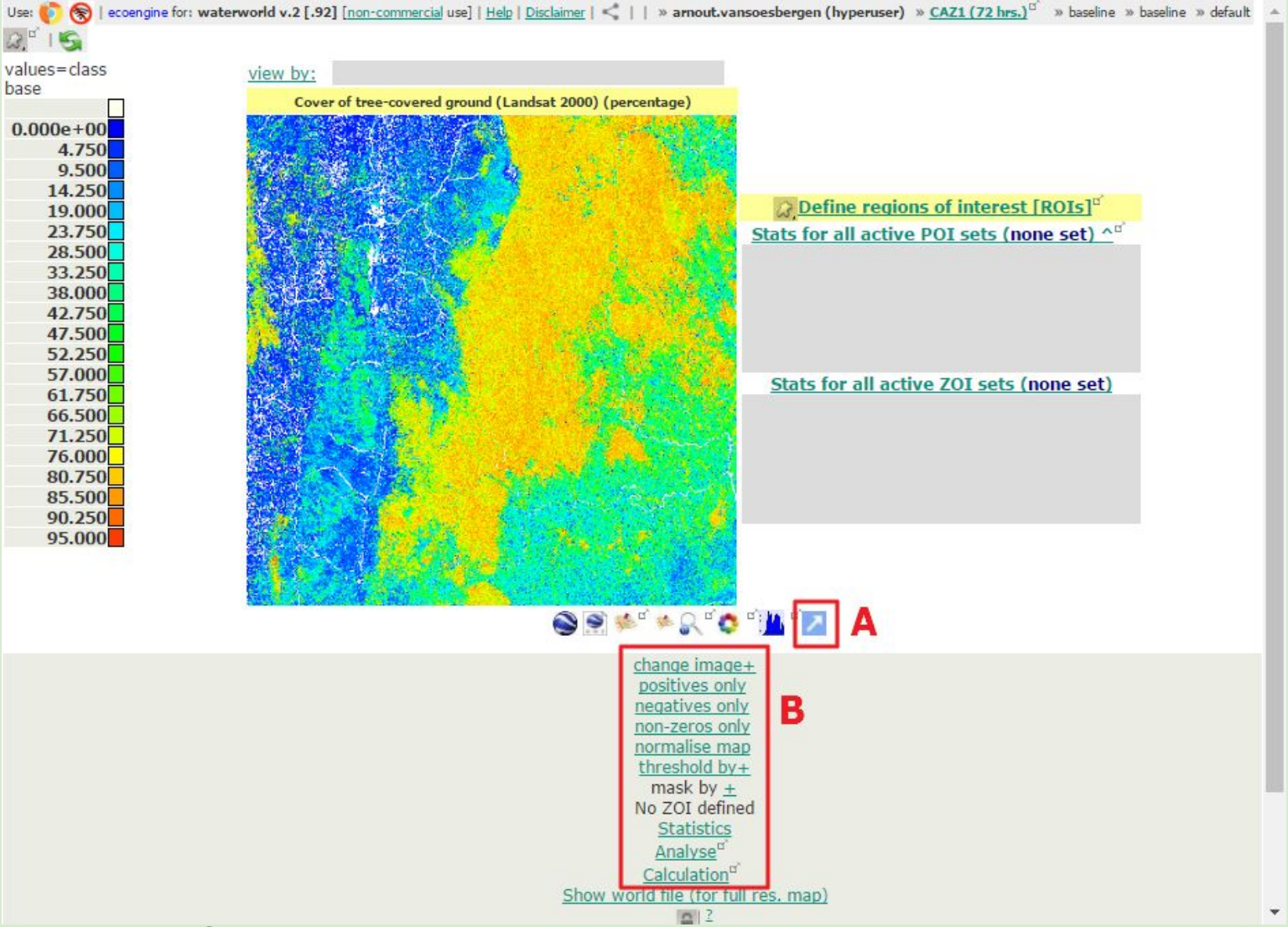
Visualising and comparing data including Google Maps/Earth, even without running the model. No local GIS system or skills required.

1. **Select to view the Cover of tree-covered ground map (see previous slide). This will open up the map view window (left)**
2. **To view the map in Google maps click on the maps icon (A) this will open up a new window (right)**
3. **You can query any pixel in the map. Move the map until the crosshair is on the desired pixel and click 'Query' (B) This will give the value (% of tree cover)**



Aggregate maps by areas (eg mean or sum of map for a protected area):

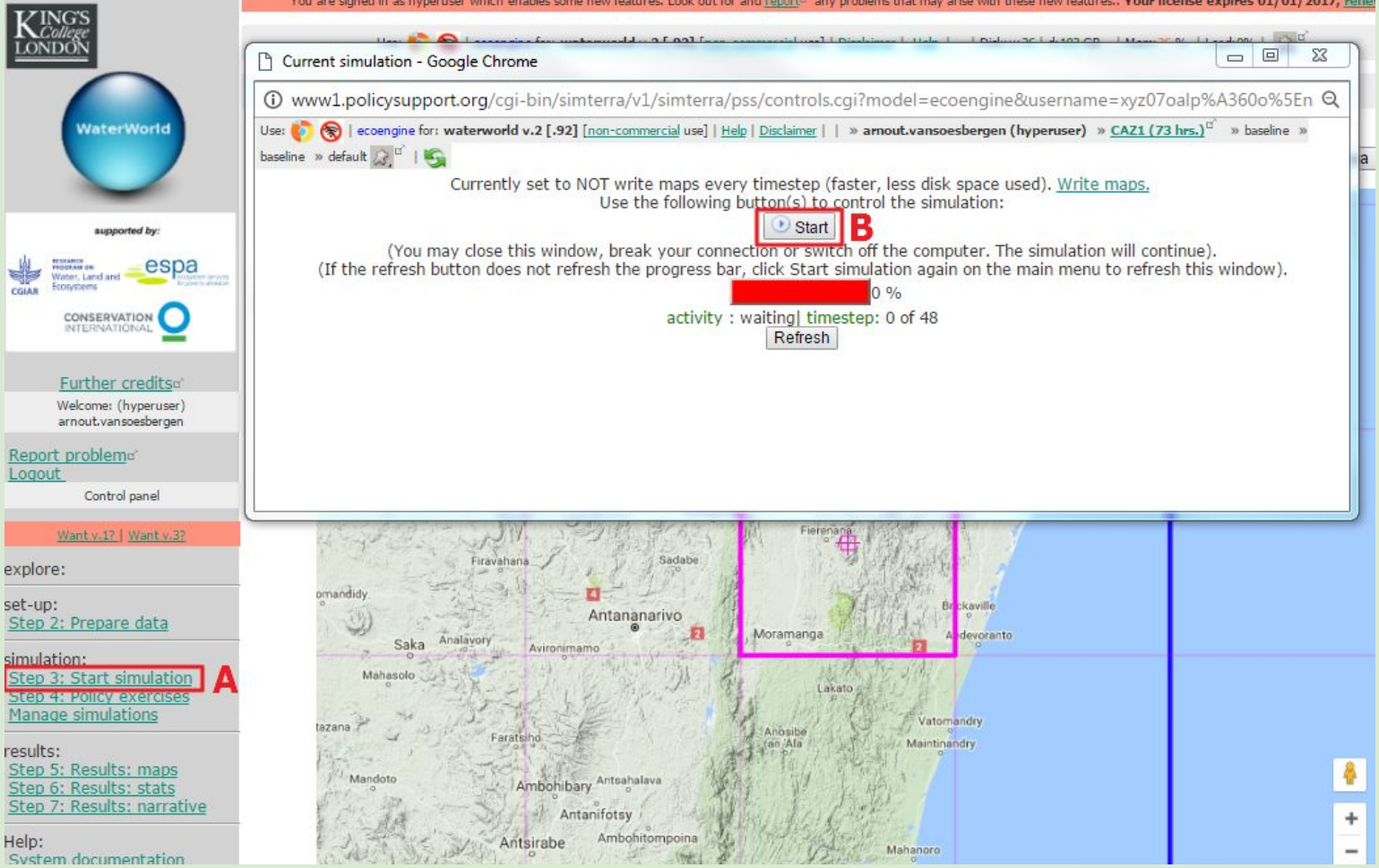
1. **Click on ‘View by’ (A)**
2. **This will open up a dropdown list (B). Select Protected areas in this list**
3. **This opens up map (C) with mean tree cover percentages for the two PAs in the tile (here based on 2014 WDPA, you can upload your own protected areas file if needed)**



Geobrowse data. Other options

As well as view in Google maps, you can also view in Google Earth or pop out a map for comparison with other maps (A)

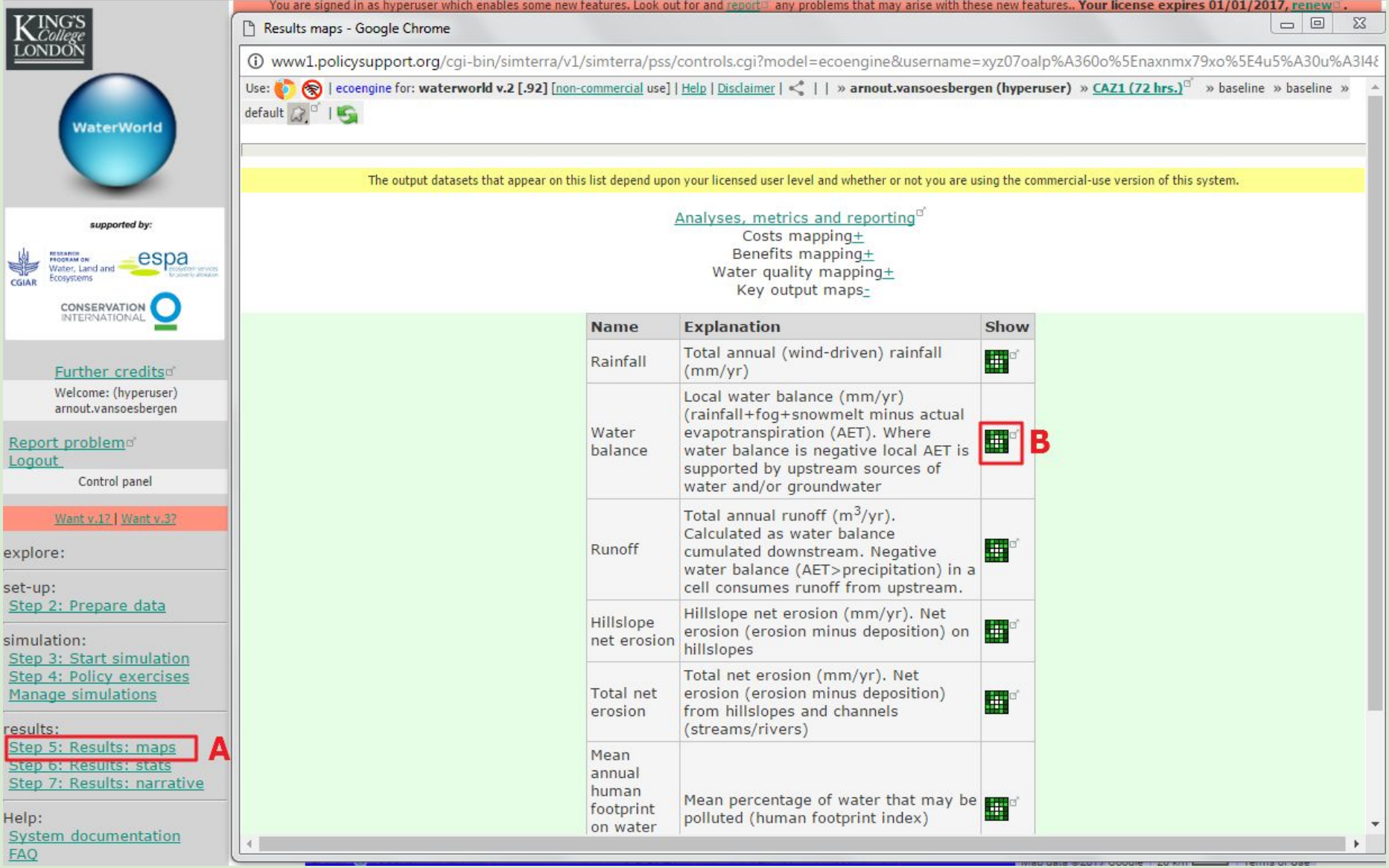
1. **A number of other options are available, such as changing the colour scheme, view only positives or negatives (if relevant), normalise, threshold and mask maps and calculate statistics (B). If download is available, there will be a download link**



Step 3: Start simulation

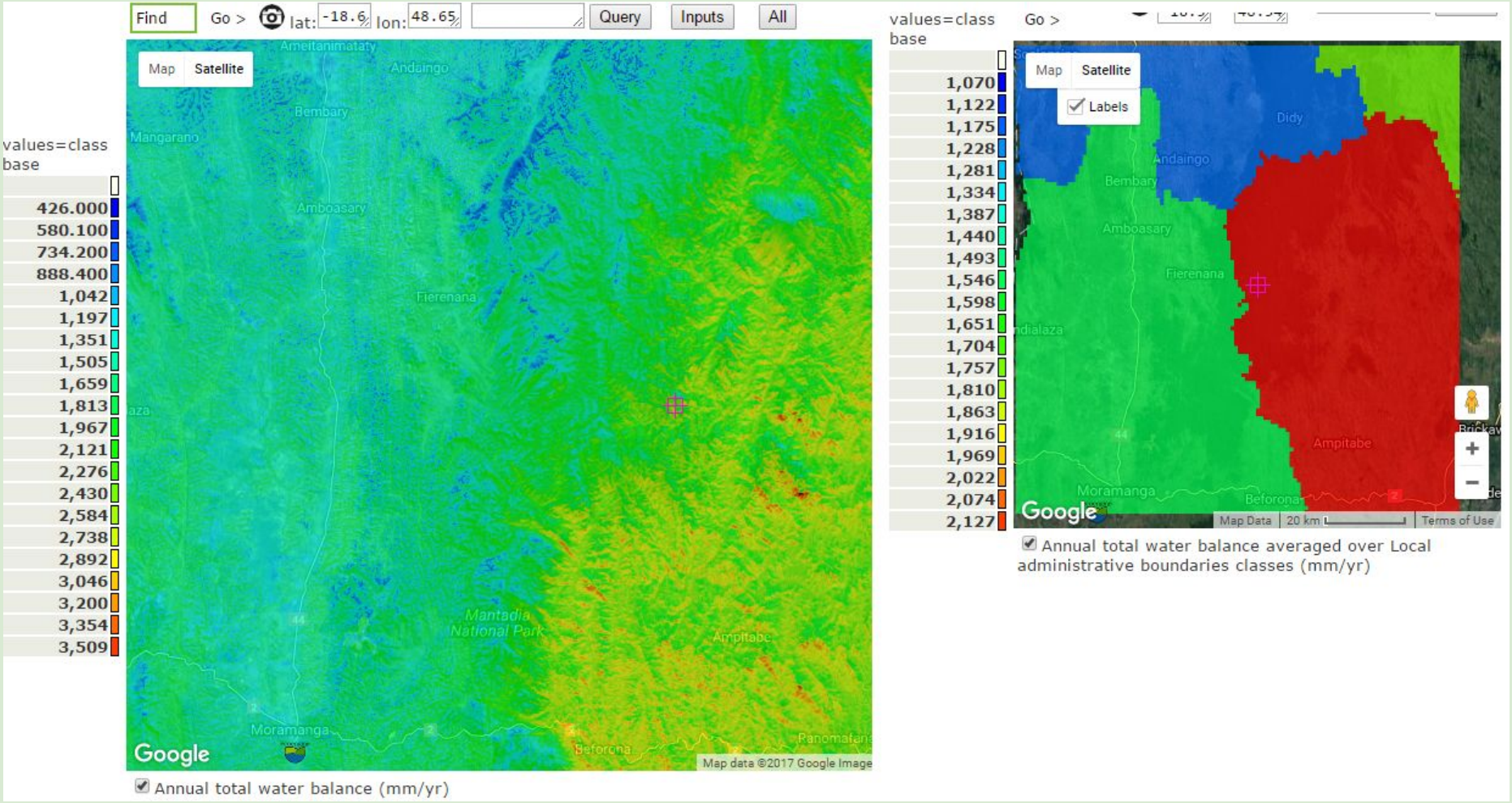
1. **Click Step 3: start simulation (A)**
2. **Click Start (B). A simulation will take around 15 minutes to run a sophisticated hydrological baseline. If the area has never been run before by anyone else, this can take 24 hours (because of preprocessing) but once started, window or computer can be switched off. Will complete without user interaction.**

Time for discussion or take a break now



Step 5: Results maps (A)

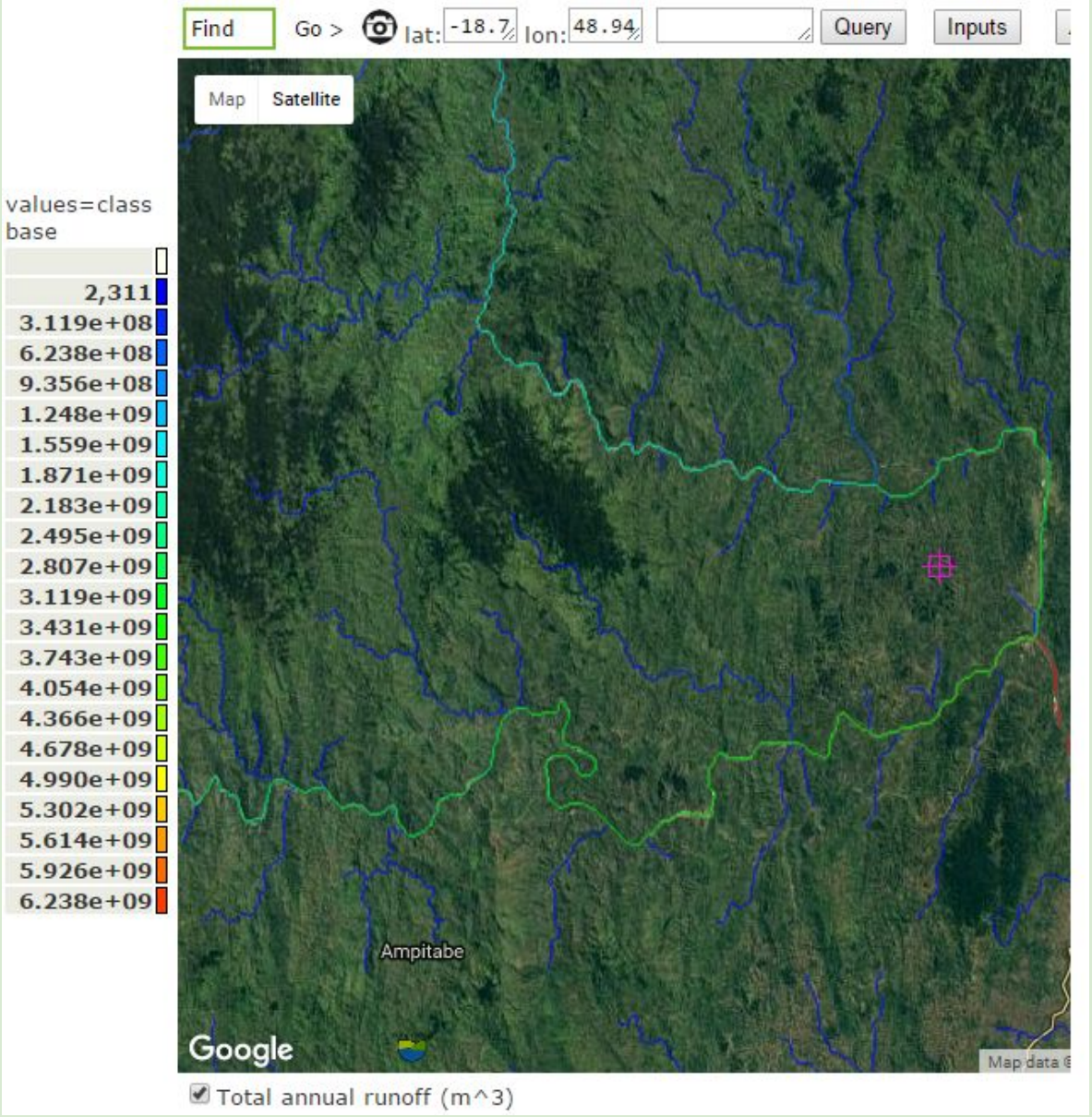
1. **We are skipping Step 4 as we want to look at the baseline results before running an alternative**
2. **Key results are presented**
3. **To view them, click the 'Show link'. Do so for the map water balance (B)**



Water balance (available water)

The pixel based water balance (in Google map view) ranges from around 420 mm/year to more than 3500 mm/year (left). Wind driven rain means that topographic exposure is important to rainfall receipt. The west is clearly in rain shadow.

Aggregated over local administrative boundaries (View by -> local admin boundaries) provides a clearer view of the regional differences.



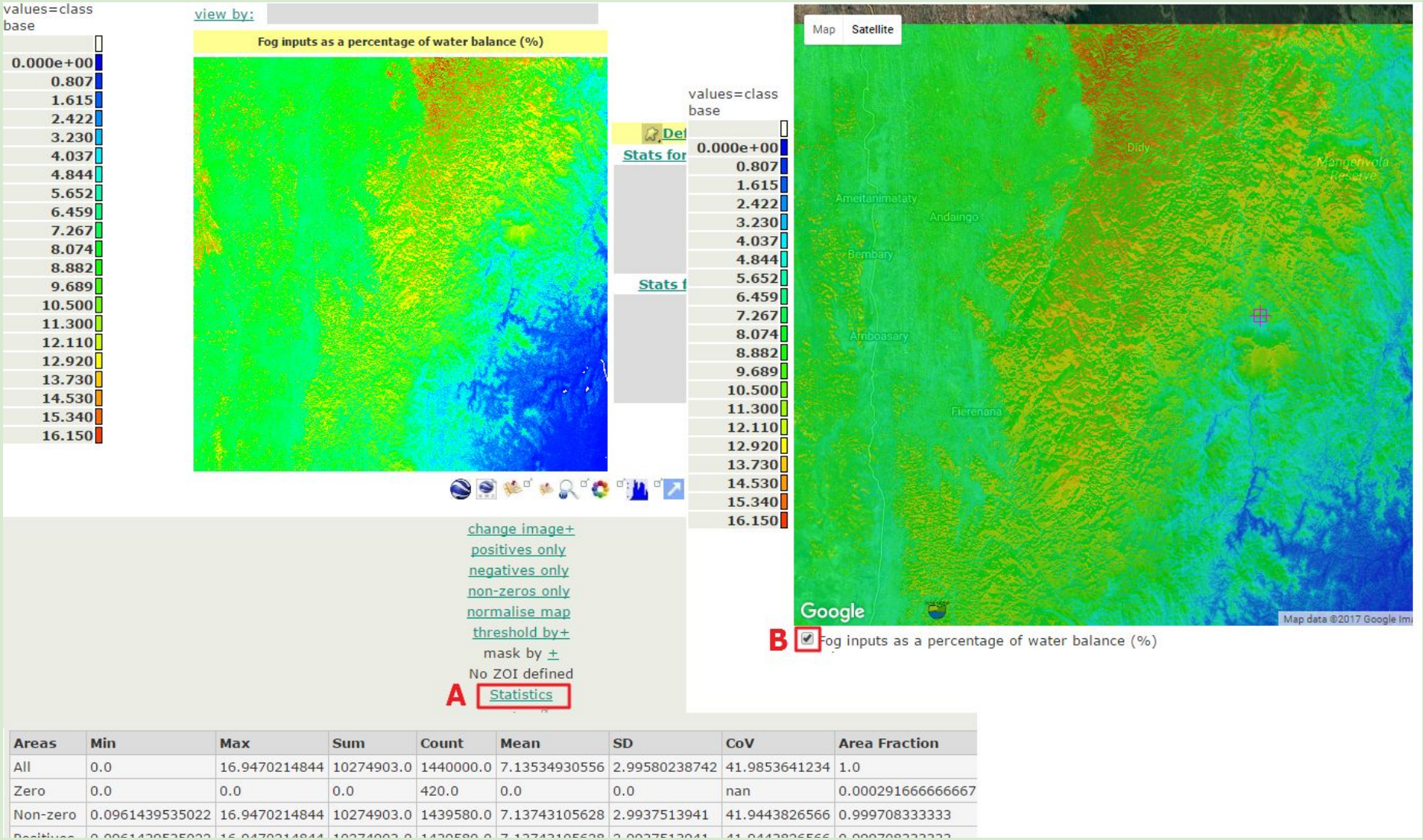
The water balance cumulated downstream represents the runoff, shown here in Google maps mode as total annual runoff (m3).

If you have points where measurements have been taken, these can be compared with the model by setting points of interest and reading the values for those points from the map.

Further results

Click on the + next to All maps under the main output maps (A). This will show a range of output maps.

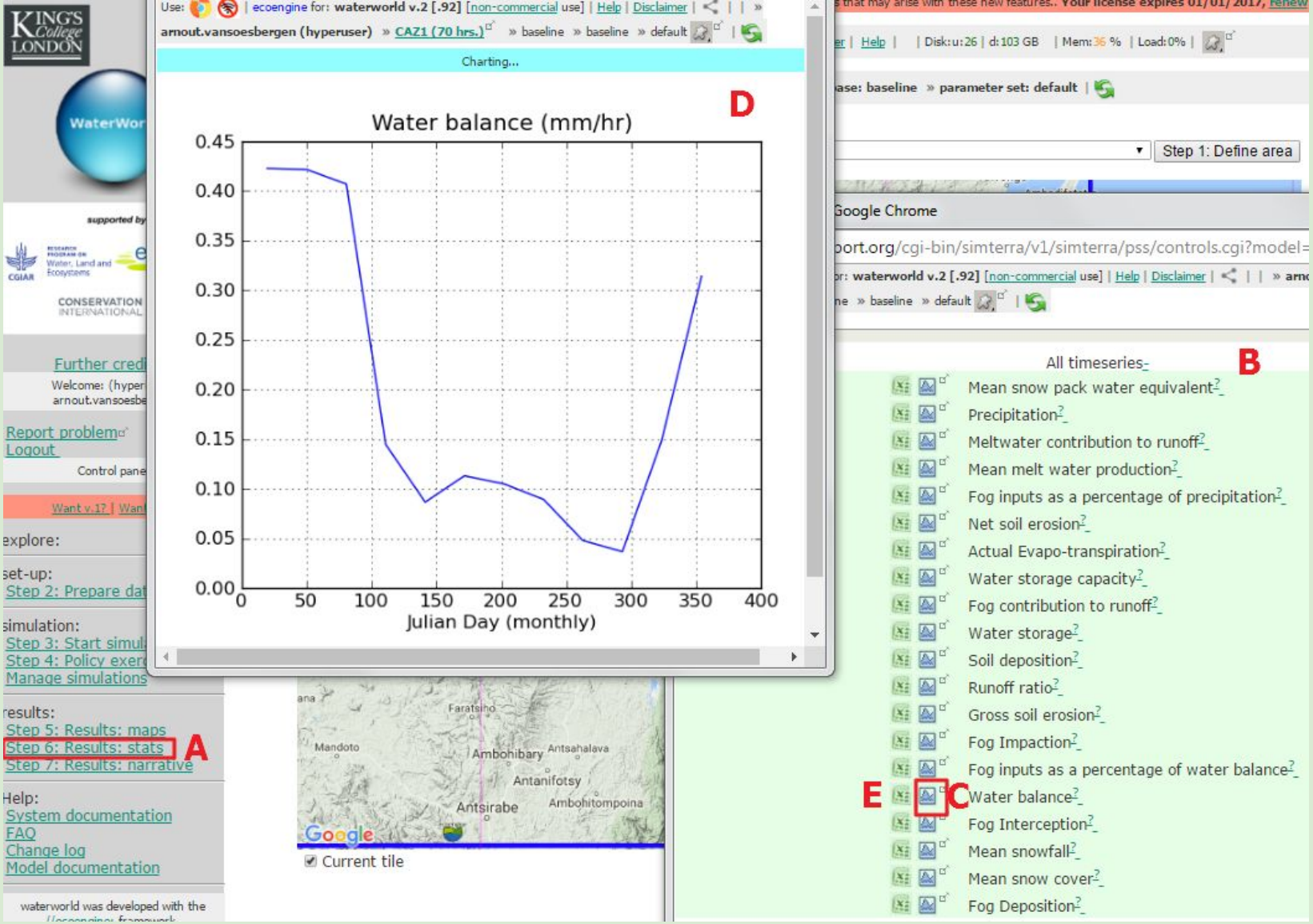
Click to view the map Fog inputs as percentage of water balance (%) (B)



Areas	Min	Max	Sum	Count	Mean	SD	CoV	Area Fraction
All	0.0	16.9470214844	10274903.0	1440000.0	7.13534930556	2.99580238742	41.9853641234	1.0
Zero	0.0	0.0	0.0	420.0	0.0	0.0	nan	0.000291666666667
Non-zero	0.0961439535022	16.9470214844	10274903.0	1439580.0	7.13743105628	2.9937513941	41.9443826566	0.999708333333

Annual fog contributions to the water balance are up to nearly 17% in some forested areas. Click on Statistics underneath the map to see the stats (A). This contribution of water would be lost with deforestation

In Google maps view, you can toggle the map on and off to see the underlying satellite imagery showing the location of forests by ticking the box (B).

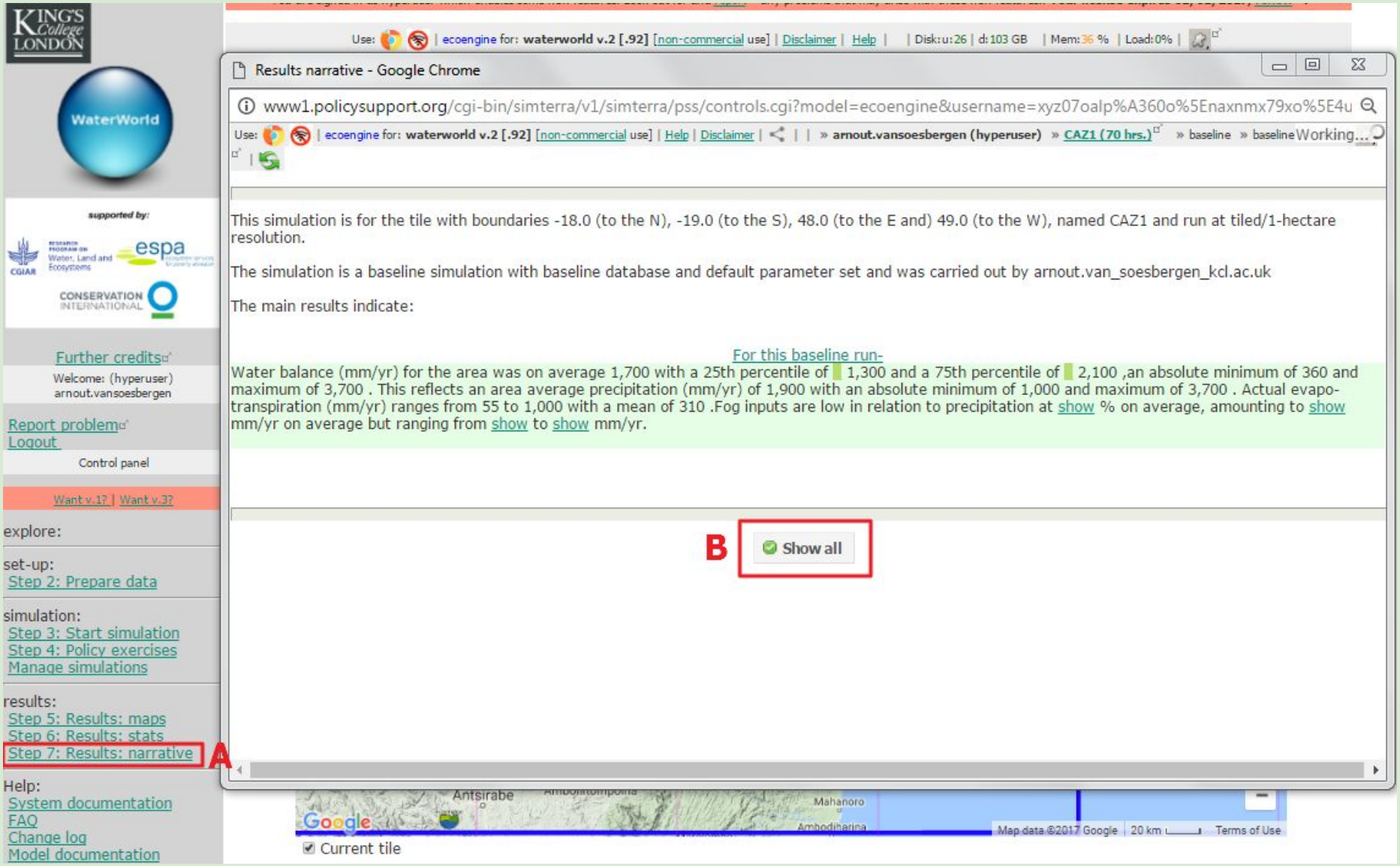


Step 6: Results: stats

Access to time series results for download (Excel) and online visualisation.

1. **Close the results: maps windows and click Step 6: Results: stats (A) from the main page to see (B).**
2. **Click (C) to display the water balance time-series (D) and (E) to download as Excel file.**

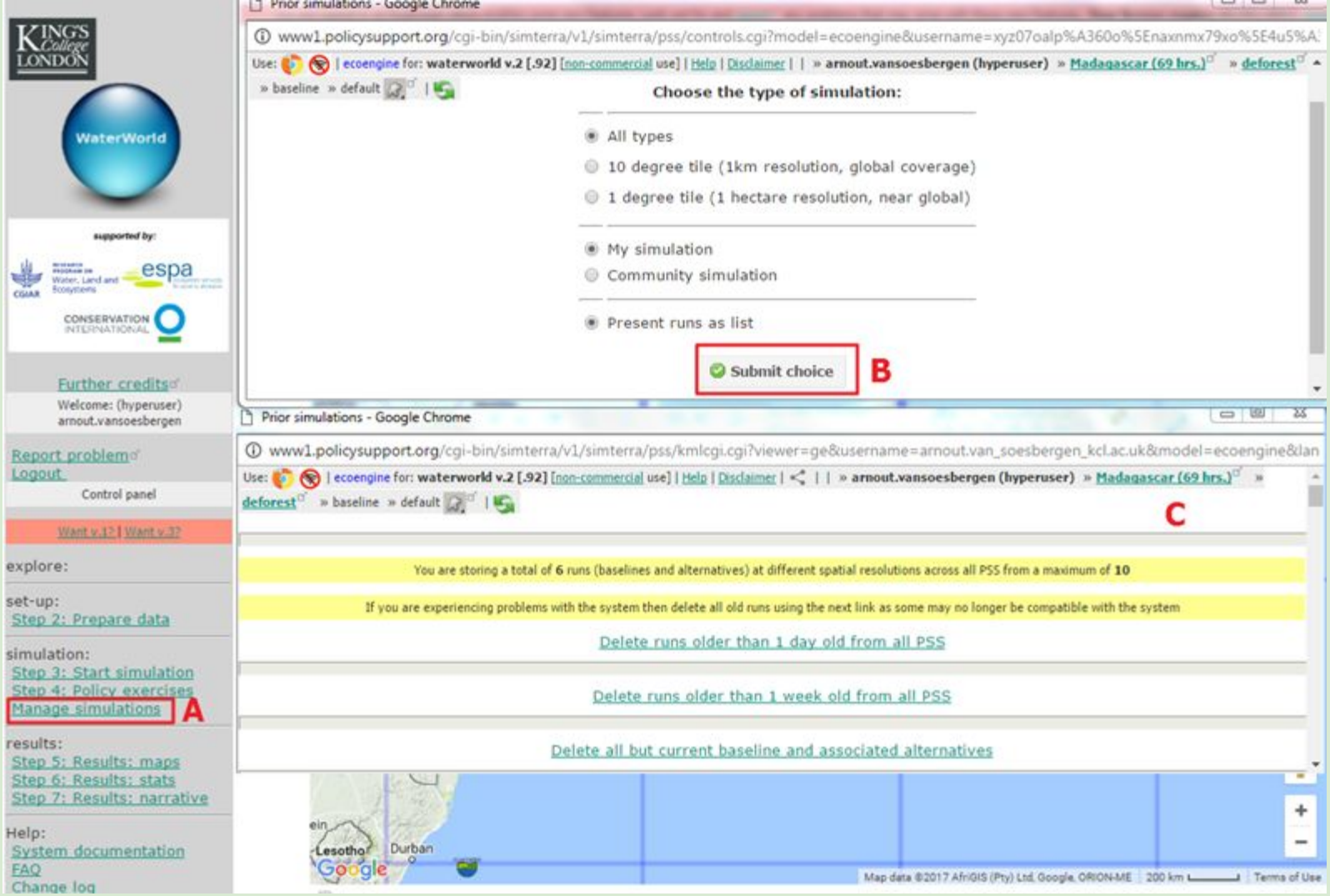
This is an average across the study tile. The dry season is very clear



Step 7: Results: narrative

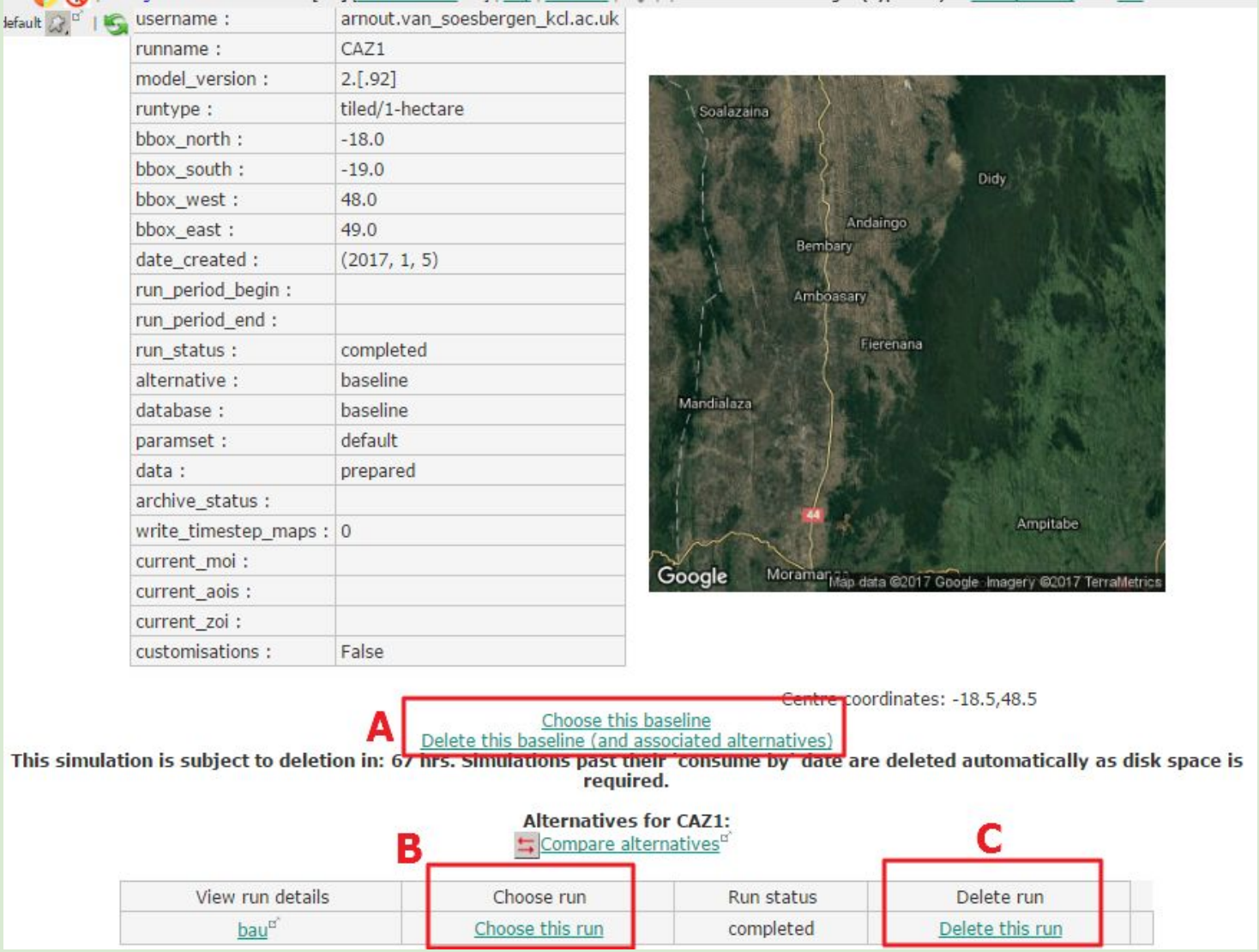
A written summary of the simulation results

1. **Click Step 7: Results narrative from the main menu (A)**
2. **Click on individual 'show' links or the Show all button (B) to fill in the results**



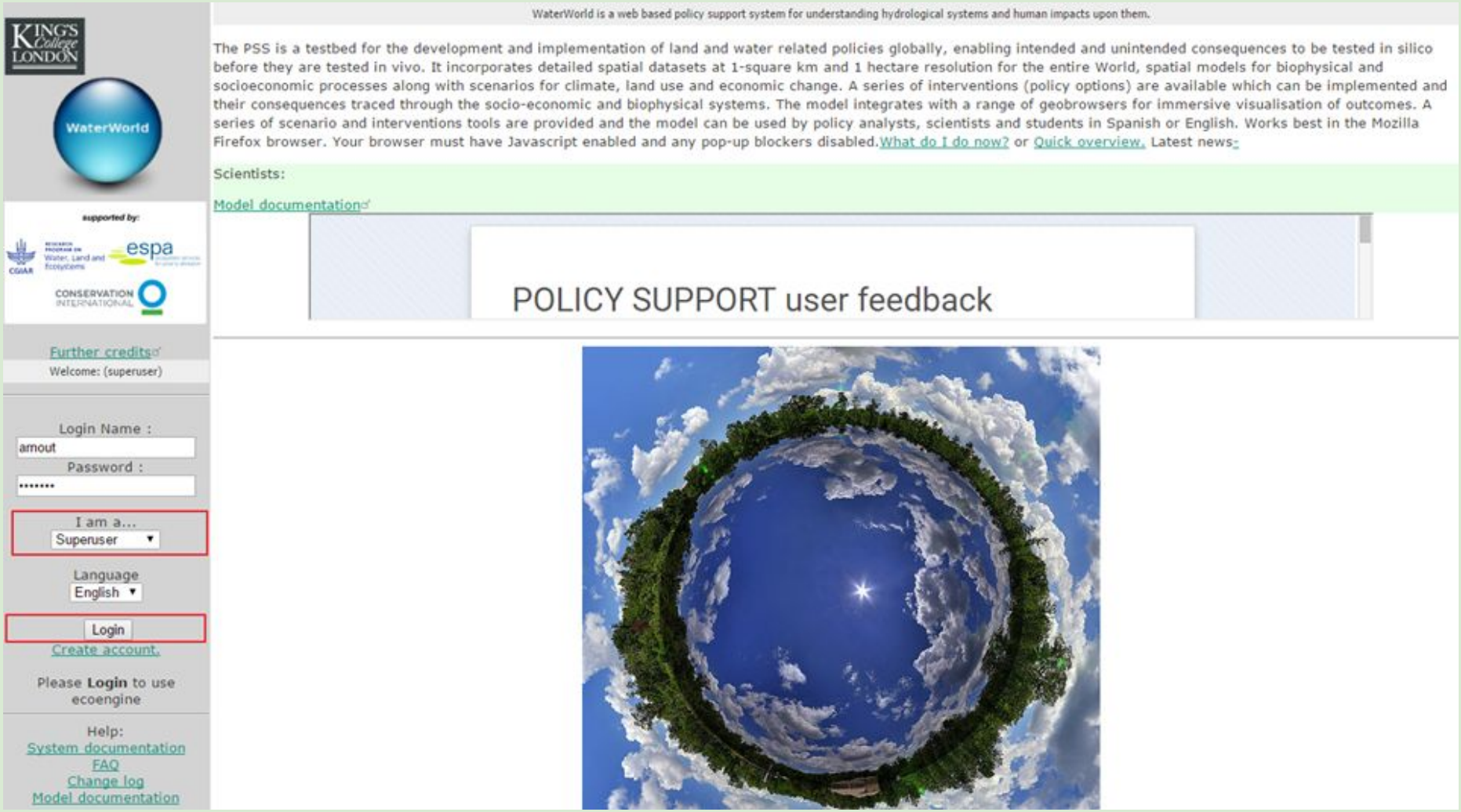
Manage simulations 1:

All runs take up considerable amount of space on the servers and thus you are only allowed to store a limited number of runs. To delete old runs and to see which ones are in your workspace, click on Manage simulations (A). This will open up a new window. Leave to default and click Submit (B) which will open another window (C) where you can view and delete old runs



Manage simulations 2:

The manage simulations window will show all model runs and alternatives. You can select runs (e.g. switching between baselines) or delete baseline *and* alternatives (A) or select individual runs (B) or delete individual runs (C)



Create account: ON PUBLIC SERVER HERE Define institutional email, username and password for this system [do not use passwords you use on other sites], wait for e-mail, click link in e-mail, check in spam folder if e-mail not received within a few minutes) . **Sign in as scientist. If you do not have an institutional email address create account here**