



Australian Government



Water availability

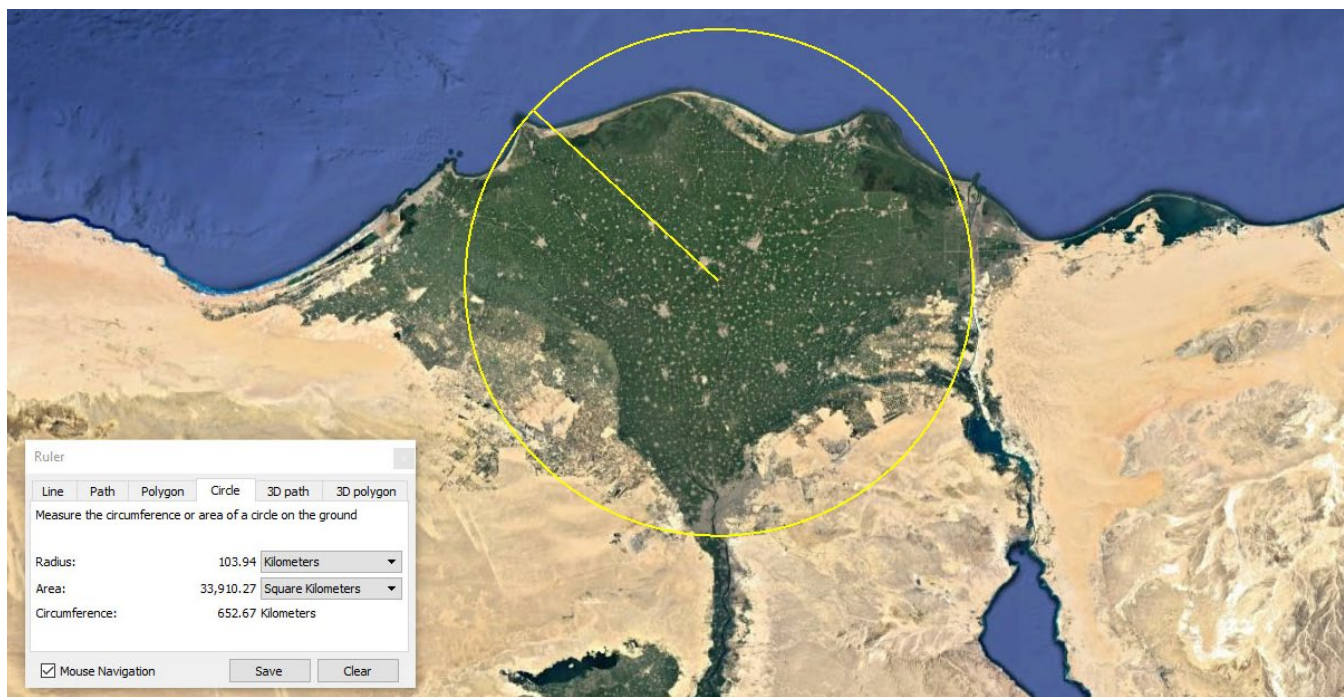
Activity: Following your teacher's direction, use the [world discharge data](#) to create bar charts and a clustered column graph to explore the data.

Then use these data/charts as well as the following information and images to make conclusions about the water flowing through some of the world's rivers.

- The White Nile and the Atbara River are the only major tributaries to the (blue) Nile that flows to the sea. The Atbara, roughly halfway to the sea, originates in Ethiopia and is around 800 km long.
- The Amazon is the 2nd longest river in the world. It has over 1,100 tributaries, 18 of them over 1,500 km long. One tributary (the Rio Negro) is the 2nd largest river in the world in terms of flow.
- The Murray has 45 tributaries and the Darling 42. The Paroo tributary is 1,210 km long (but dries up), the Warrego tributary is 1,380 km long, the Murrumbidgee 1,488 km long. 59 tributaries are less than 100 km long. The Darling joins the Murray before flowing to the sea. Together, these contribute to a length of 2508 km.

Note the radius of the yellow circles in the images below, given by the Ruler measurements.

Nile river delta

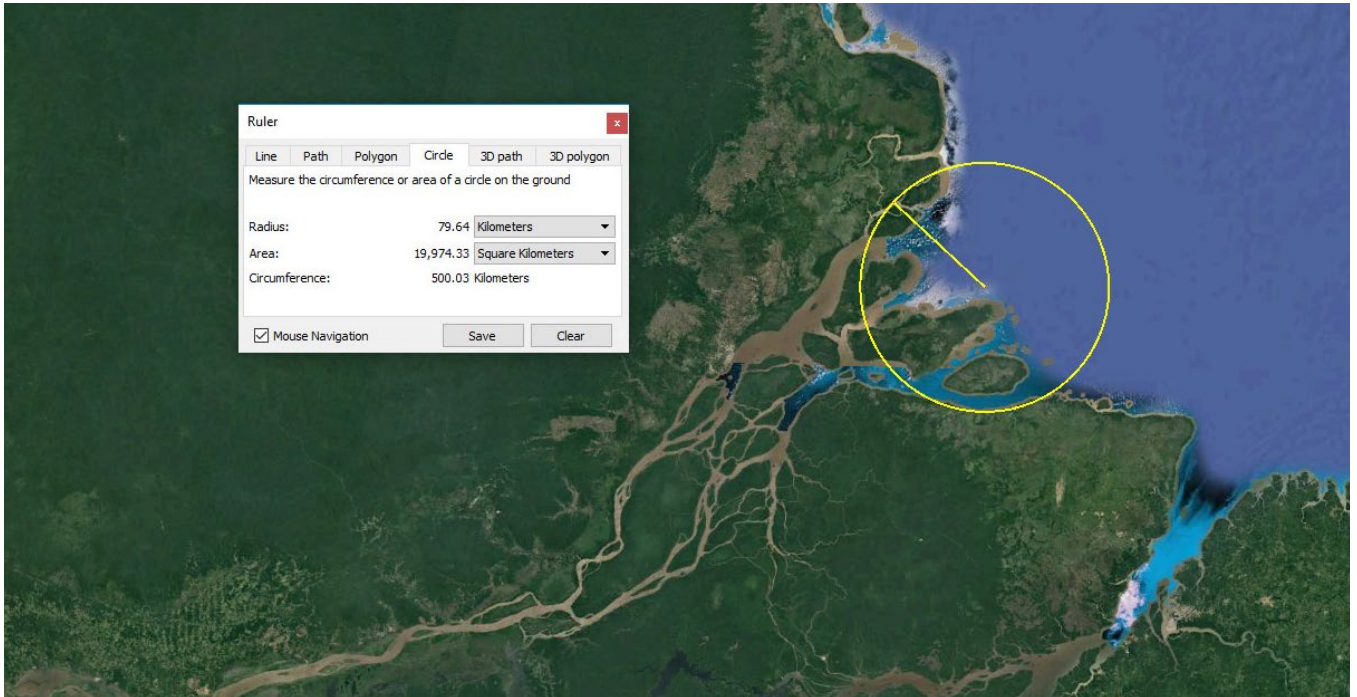




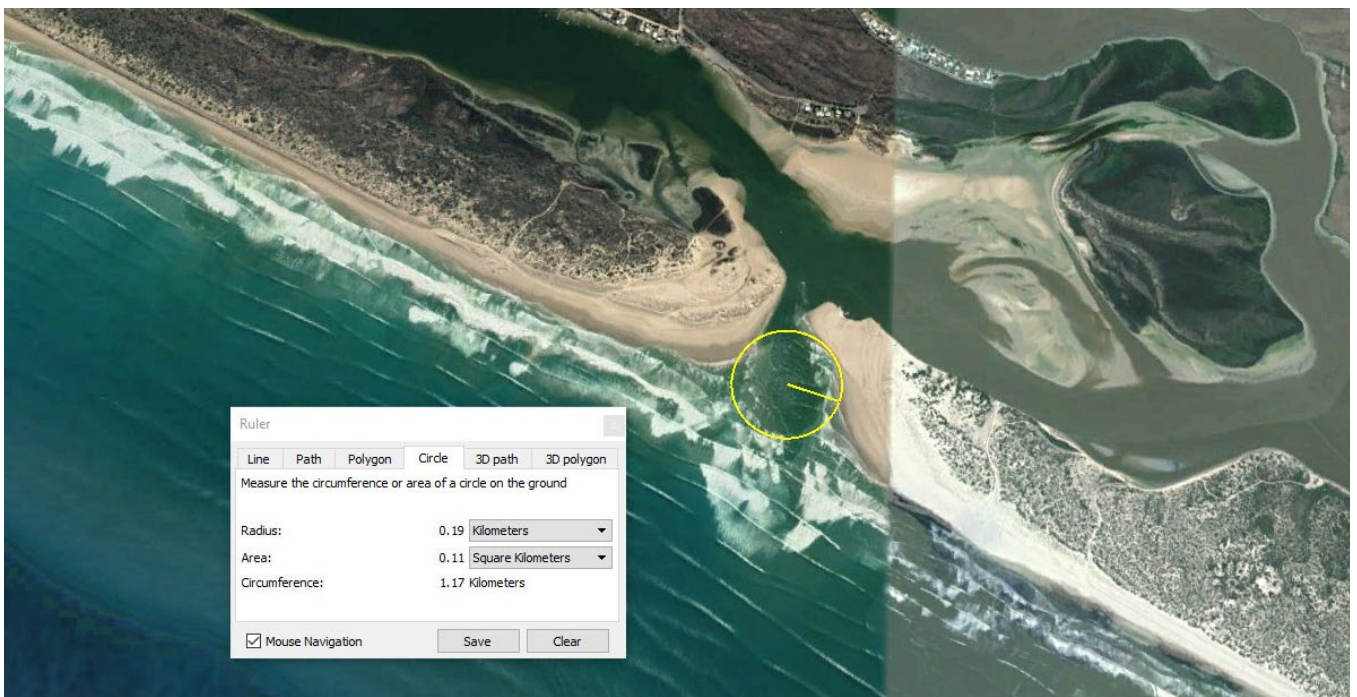
Australian Government



Amazon river delta



Murray river delta





Australian Government



1. What do you conclude about the Murray in comparison to other large world rivers?

2. Investigate the MDBA's Murray-Darling Basin map poster.
 - a. What are the three largest rivers in the Basin?

 - b. Where do the Murray and the Darling join?

 - c. Where does the River Murray flow out to sea?

3. Rainfall is not even across the Basin. Side-by-side if possible, look at:
 - the Bureau of Meteorology's rainfall map:
http://www.bom.gov.au/jsp/ncc/climate_averages/rainfall/index.jsp
 - the Murray- Darling Basin Authority's catchment map:
<https://www.mdba.gov.au/discover-basin/catchments>
 - the Bureau of Meteorology's climate classification map:
http://www.bom.gov.au/jsp/ncc/climate_averages/climate-classifications/index.jsp

Then also thinking about the Basin map poster showing where the rivers are, predict which catchments of the Basin are likely to receive the most inflow.

4. What can you conclude about where water is likely to be available at different places around the whole Basin? (Pick at least 5 representative spots)



Australian Government



MURRAY—
DARLING
BASIN AUTHORITY

5. Go to the Bureau of Meteorology's Australian landscape water balance map:

<http://www.bom.gov.au/water/landscape/>.

This shows where water actually sits in the soil and is available to grow things.

Click on the drop-down 'Area' menu and view the Basin states separately (QLD, NSW, SA, and VIC).

How does what you see compare to your predictions?

6. In Excel, create a River Murray inflows graph for 2013-14 using the spreadsheet provided by your teacher. (Use chart type 'Combo' - available in the 'All Charts' tab). Then answer the following:

Note: 5-day average means each bar is the inflow for five days added up, then divided by 5. The solid line give is the 'average' daily flow per month over an approximate period of 115 years.

a) Which are the two wettest months?

b) In 2013-14, which months have 5 day average flow days above the long-term average daily flow per month?

c) Where is the longest period of months with flows below 15,000 Gigalitres?

d) What is the overall picture of the year?



Australian Government



Look at the Basin map poster again - at the floods and droughts inflows graph bottom left. This shows the long-term average annual flow and the annual flow from 1895 to 2017.

You can see that it is rarely 'average' inflow. What do you think this means for the reliability and sustainability of water for people and environments in the Basin?