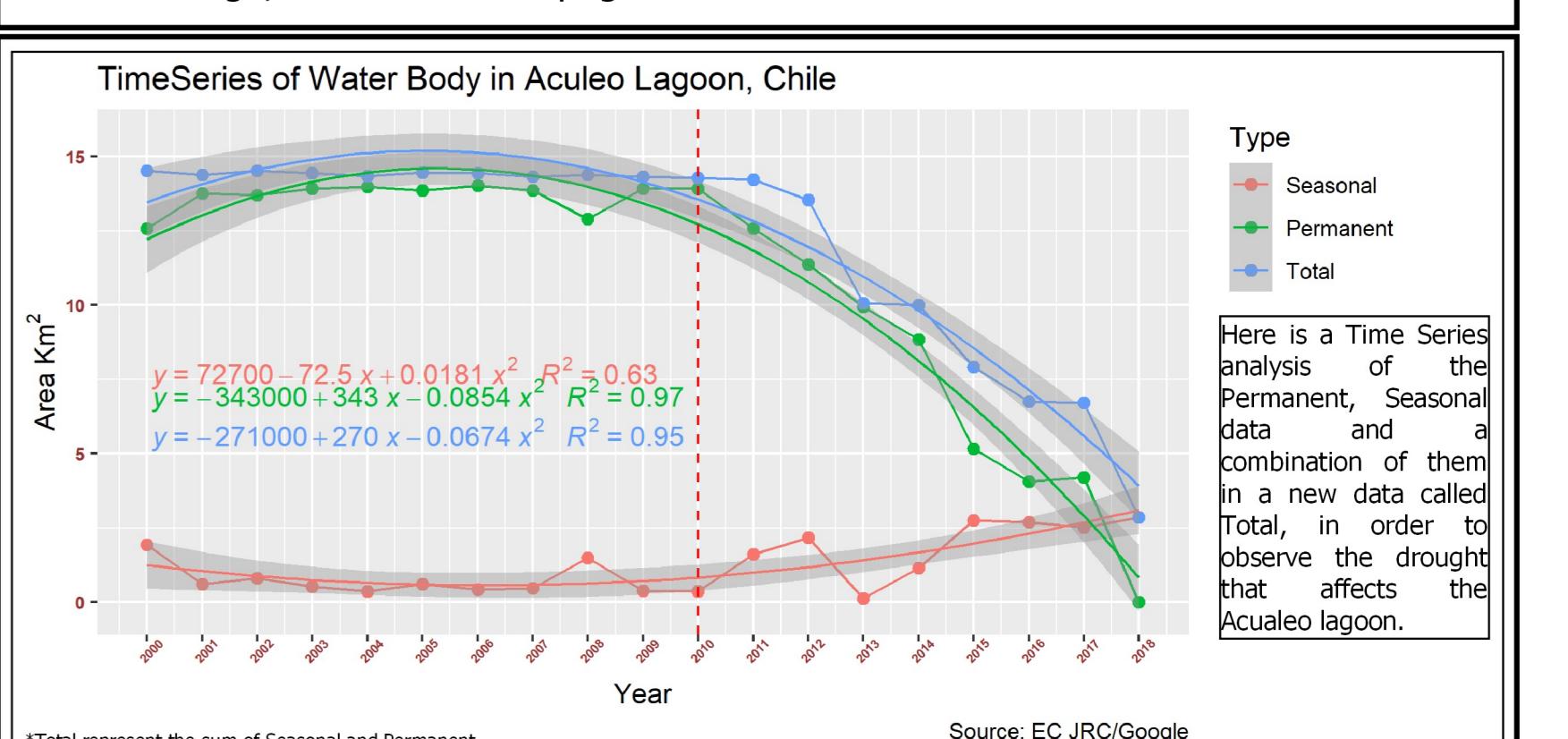
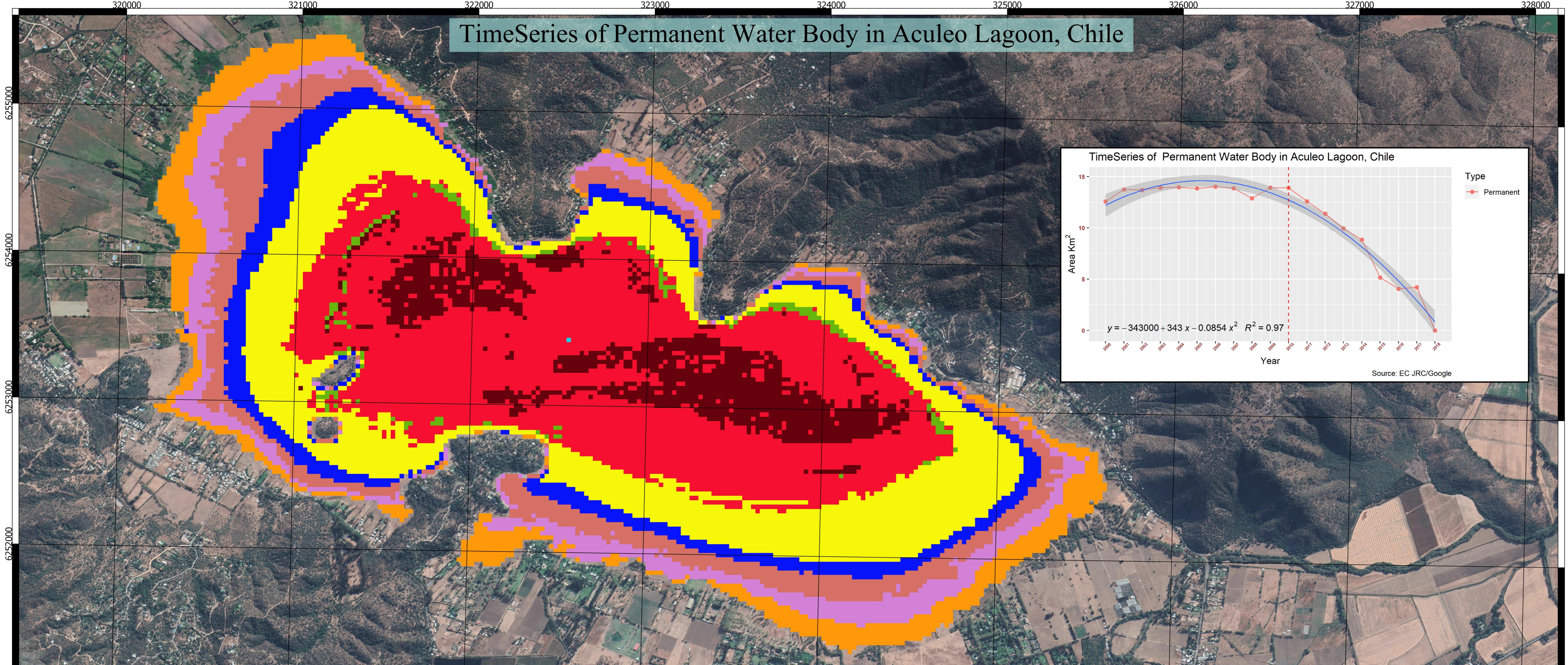


What do the maps show?  
The maps show different facets of surface water dynamics in the Aculeo Lagoon, Paine, Chile. Displaying where and when open water was present on the Earth's surface between March 2010 and October 2018. The maps display water surfaces that are visible from space acquired by the Landsat 5, 7 and 8 satellites for the Aculeo Lagoon.

What is Surface Water?  
Surface Water Seasonality describes the intra-annual distribution of surface water. It discriminates between 'permanent' and 'seasonal' water surfaces for any given year. A permanent water surface is underwater throughout the entire year, whilst a seasonal water surface is underwater for less than 12 months of the year. In some places, we don't have observations for all 12 months of the year. In such cases, water is considered to be seasonal if the number of months during which water is present is less than the number of months for which valid observations were acquired (i.e. water has been detected in some but not all months during which observations were possible).

On the Aculeo lagoon...  
The Aculeo Lagoon is a lagoon located in the metropolitan region of Chile, which is currently dry and as we can see from the permanent water graph, this decline began in 2010 almost continuously. On the other hand, when analyzing the graph of Seasonal water, an annual increase can be found, being a paradoxical phenomenon and which needs further study to understand if the decrease in water was due to the effect of climate change, natural or anthropogenic.



Here is a Time-Series analysis between 2015 and 2019 using images from the LandSat 8 satellite to continue analyzing the area after 2018 applying NDWI imaging for the study area. It can be seen that there have been no major changes and the drought continues uniformly, the image could not be completely continuous, since there are many days with clouds, which is an obstacle to having continuity of comparable information.

Autor: Diego Alarcón  
Date: April 20, 2020  
Map produced: April 21, 2020  
Data Source: EC JRC/Google  
IDE Chile  
Softwares : RStudio & QGIS

**Cartographic Information**  
Local Projection: WGS 84 UTM Zone 19S  
Geographic Projection Lat/Lon (DMS), Datum: WGS 84  
Printed in A0

Scale: 1:7000  
0 750 1500 m