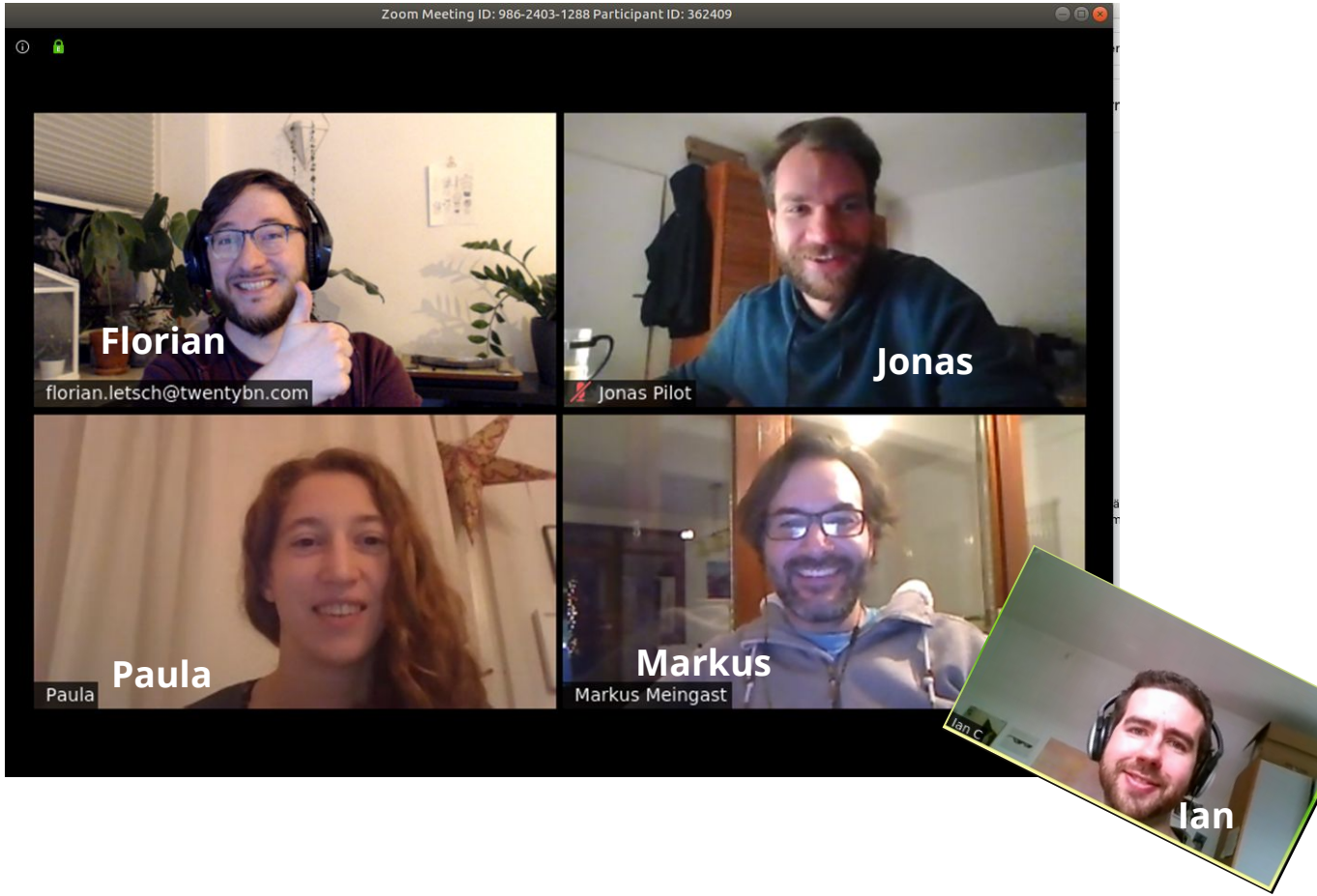
#team-4


Zoom Meeting ID: 986-2403-1288 Participant ID: 362409
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Jonas Pilot
Paula
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Markus
Markus Meingast
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NEWS / ENVIRONMENT

Australia declares state of emergency as heatwave fans bushfires

Spain battles biggest wildfires in 20 years as heatwave grips Europe

Health officials warn 'the worst is still to come', with temperatures expected to exceed 44C in some areas

2019 Was The Year The World Burned

Wildfires burned around the world this year from Australia, the Amazon and California. These forest blazes are part of nature but climate change is making them more frequent and more intense.

https://www.theguardian.com/world/2019/jun/27/hundreds-of-firefighters-tackle-blaze-in-north-east-spain
https://www.aljazeera.com/news/2019/12/australia-declares-state-emergency-heatwave-fans-bushfires-191219004935370.html
https://www.huffpost.com/entry/wildfires-california-amazon-indonesia-climate-change_n_5dcd3f4ee4b0d43931d01baf

84%

Of wildfires are caused by humans

84% of wildfires in the United States from 1992 to 2012 were caused by humans.
Balch JK, Bradley BA, Abatzoglou JT, Nagy RC, Fusco EJ, Mahood AL. Human-started wildfires expand the fire niche across the United States. Proc Natl Acad Sci U S A. 2017;114(11):2946–2951. doi:10.1073/pnas.1617394114
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5358354/

Are **wildfires** more likely to start in places with a lot of **tourism**?

Galicia, Northern Spain

Approach

Data

➔ Locations of wildfires
➔ Locations of tourism locations
➔ Locations on non-tourism human locations

Compute distributions

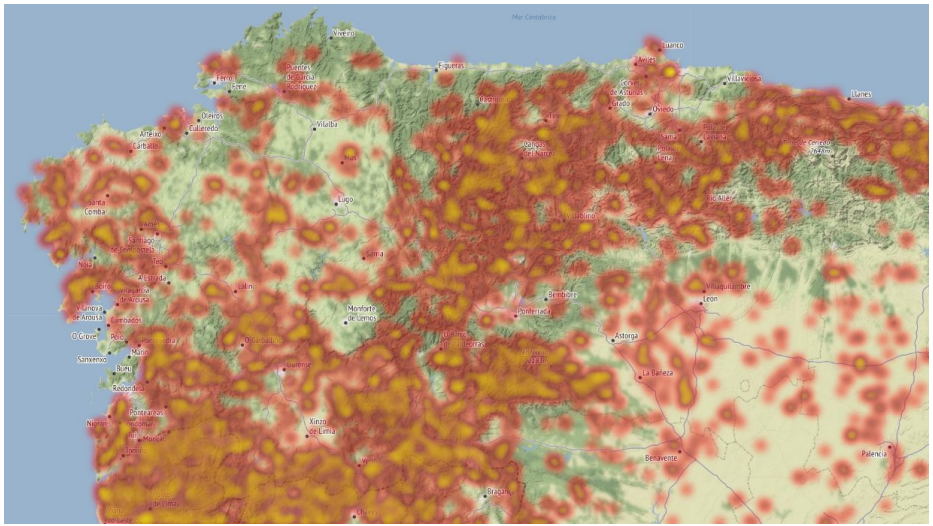
➔ Estimate kernel density (Machine Learning!)

Compare at locations of wildfires

➔ Distribution of tourism versus distribution of non-tourism human activity

Wildfires in North-Western Spain

Data source: MODIS/Terra Thermal Anomalies (dataset MOD14A1)
Plots: Ours

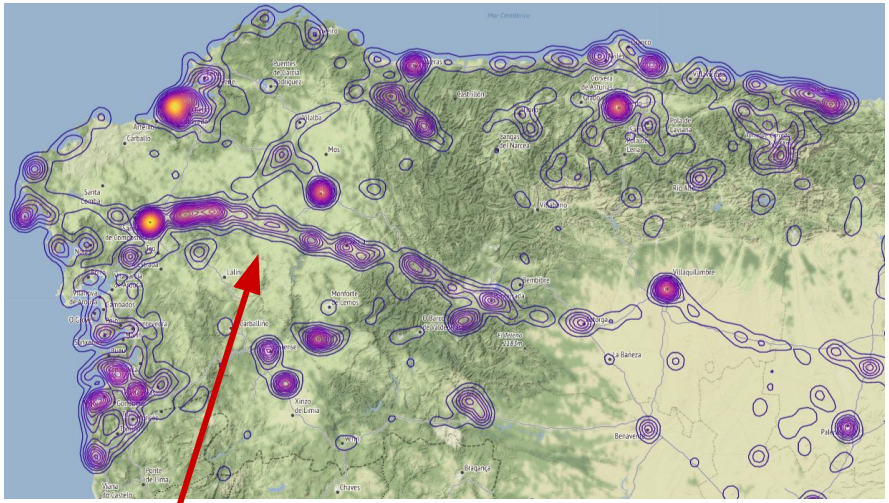


Locations of wildfires in Galicia, Asturia, Castilla y Leon from 2010 to 2020

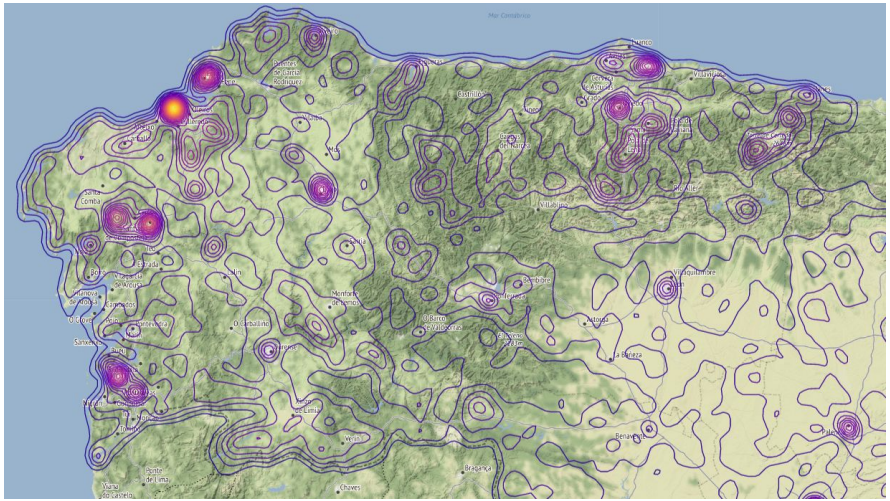
Dataset URL: https://lpdaac.usgs.gov/products/mod14a1v006
Giglio, L., Justice, C. (2015). MOD14A1 MODIS/Terra Thermal Anomalies/Fire Daily L3 Global 1km SIN Grid V006 [Data set]. NASA EOSDIS Land Processes DAAC. Accessed 2020-04-25 from https://doi.org/10.5067/MODIS/MOD14A1.006

Touristic Activity in North-Western Spain

Data source: Open Street Map, Plots: Ours



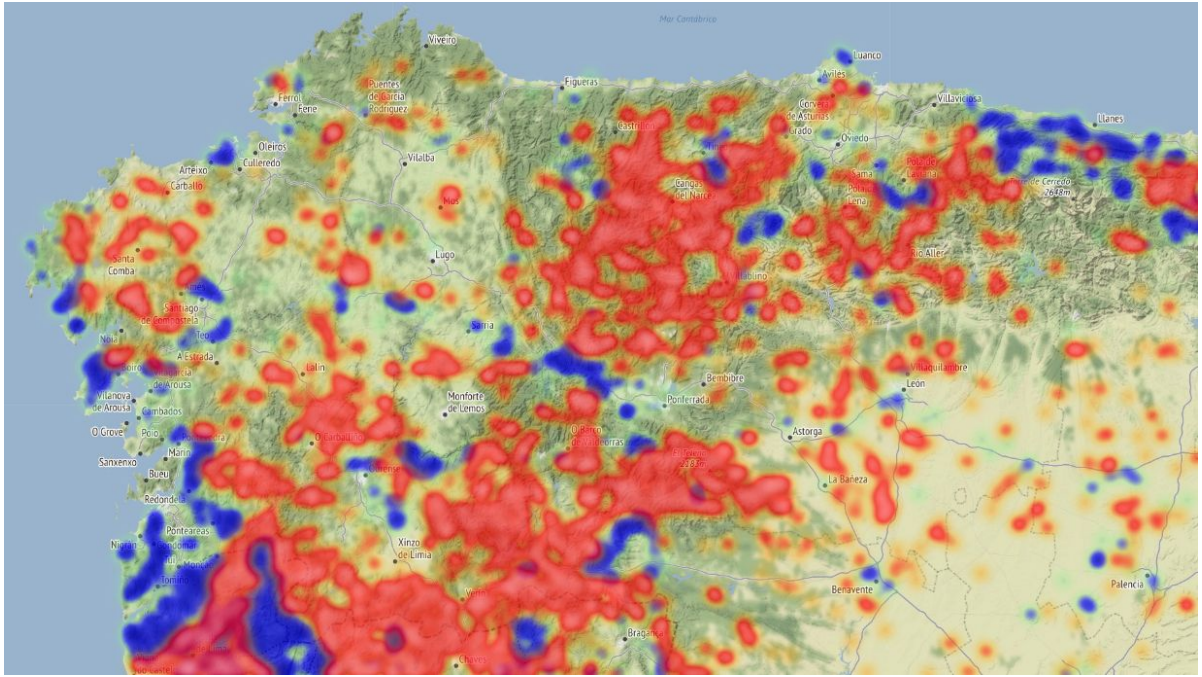
Tourist activity



Non-touristic activity

Camino de Santiago

At wildfire locations: Which human activity has a larger role?

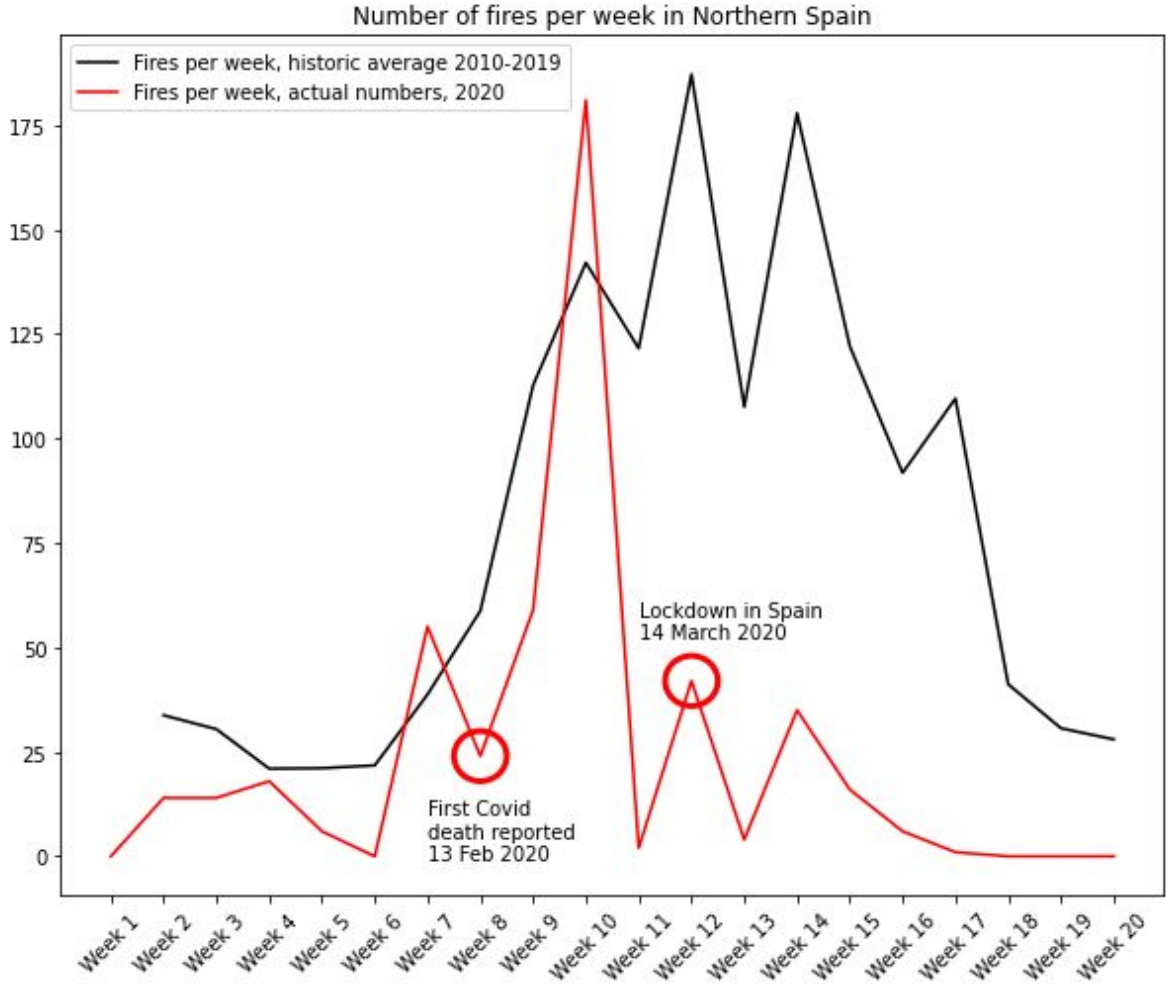


Higher KDE score at fire locations for
Tourist Distribution
Non-Tourist Distribution

So... are **wildfires** more likely to start in places with a lot of **tourism**?

Maybe? Maybe not?

Human activity in 2020? Well...



Seasonal change of tourism?

Long-term tourism change in Northern Spain?

Other regions of the world?

?

Which role does land cover type play?

Are tourist locations a good enough proxy for tourist activity?

What's a typical tourist's movement radius?

Other human factors? Agriculture, industry, transportation?

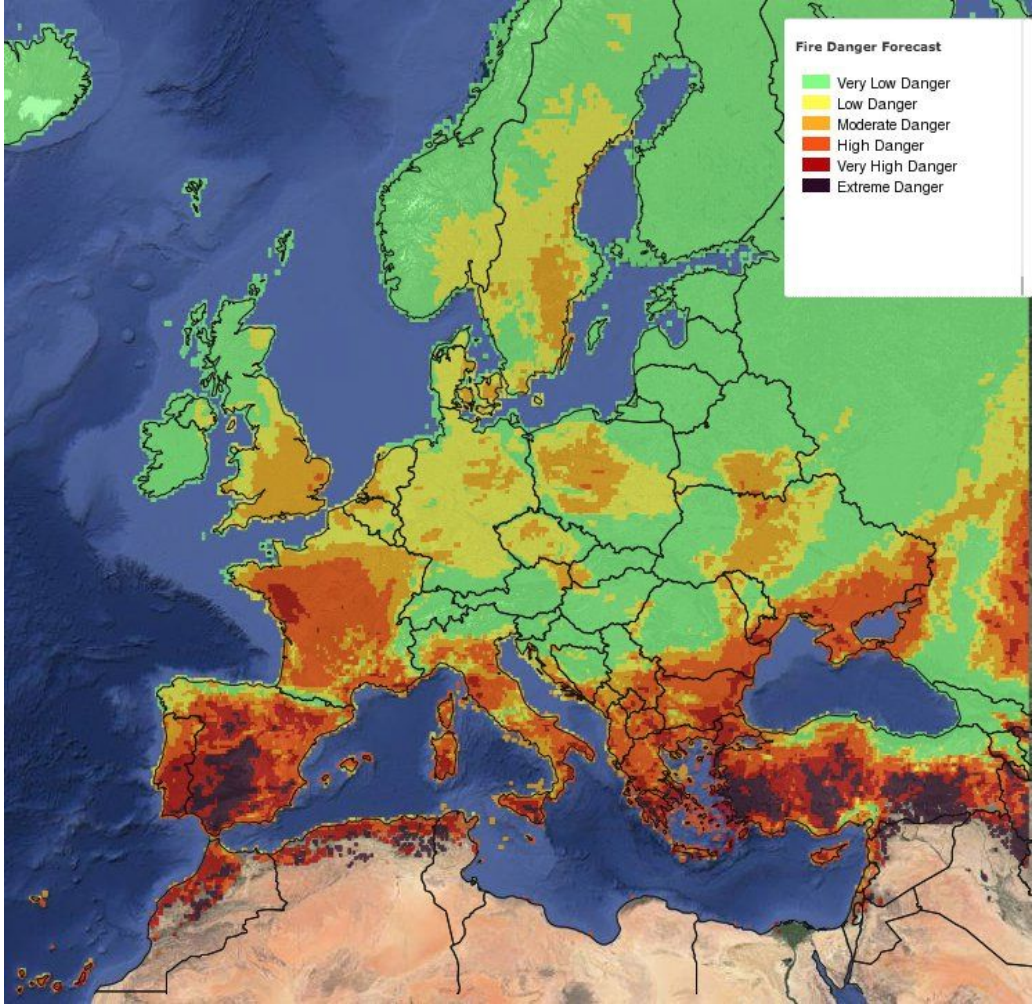
#team-4

Fork and play at
https://github.com/florianletsch/fire-tourism

“2019 Was The Year The World Burned”

-- Laura Paddison, Huffington Post

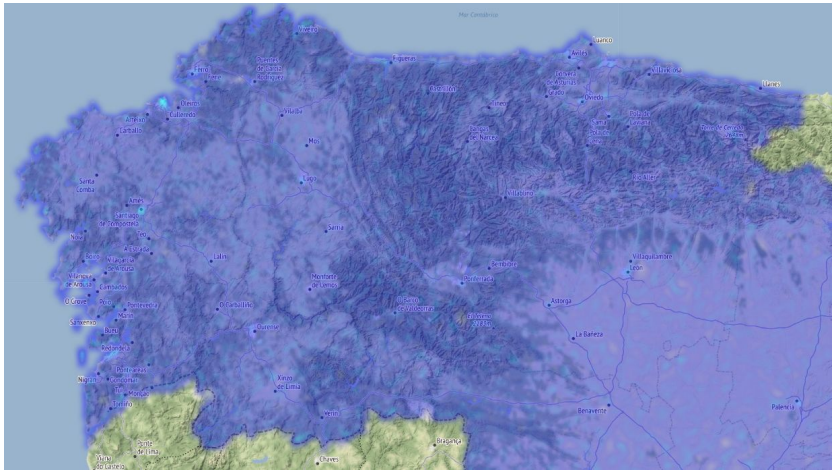
https://www.huffpost.com/entry/wildfires-california-amazon-indonesia-climate-change_n_5dcd3f4ee4b0d43931d01baf



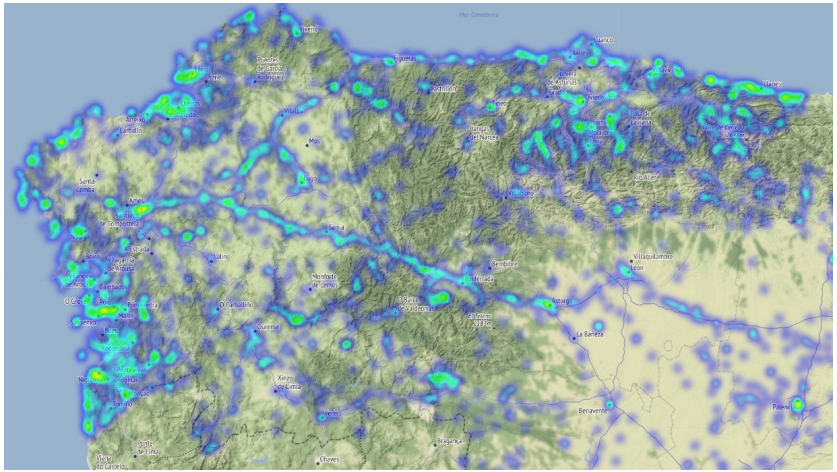
Fire Danger Forecast across Europe, August 2016 https://ec.europa.eu/jrc/en/news/effis-supports-eu-efforts-tackling-recent-wildfires-across-europe

Touristic Activity in North-Western Spain

Data source: Open Street Map, Plots: Ours



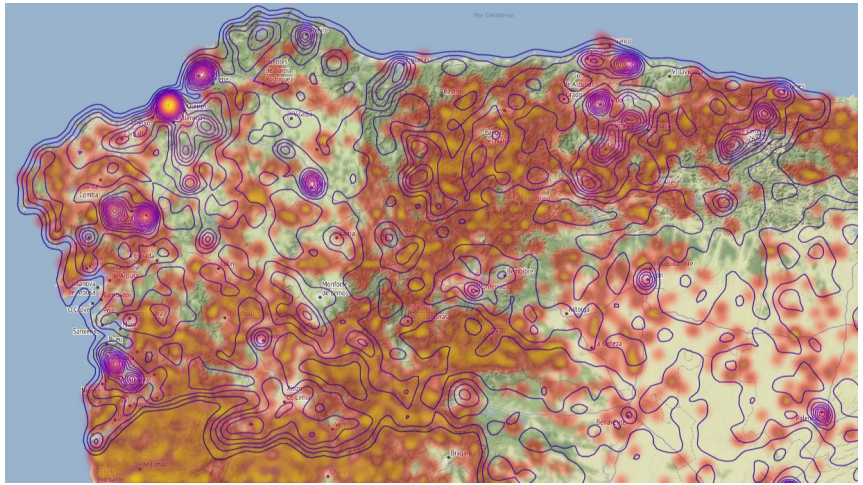
Locations with human activity



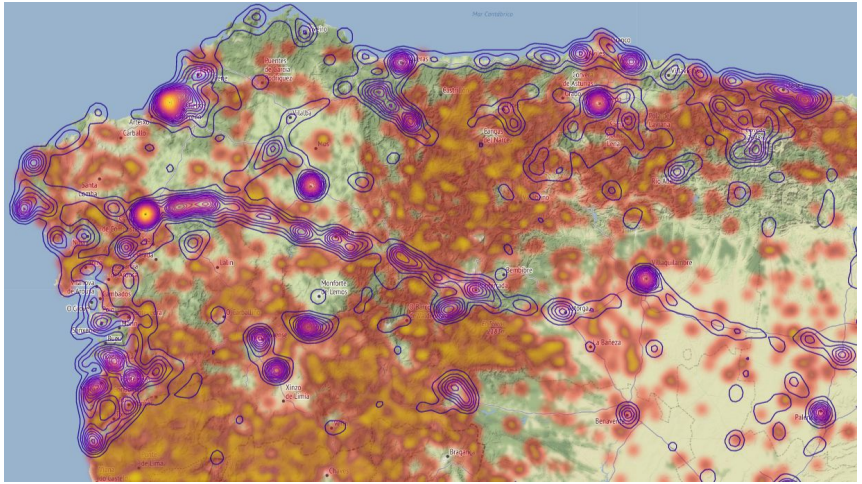
Tourist activity

Results: Distributions Overlay

TODO



Locations with human activity



Tourist activity