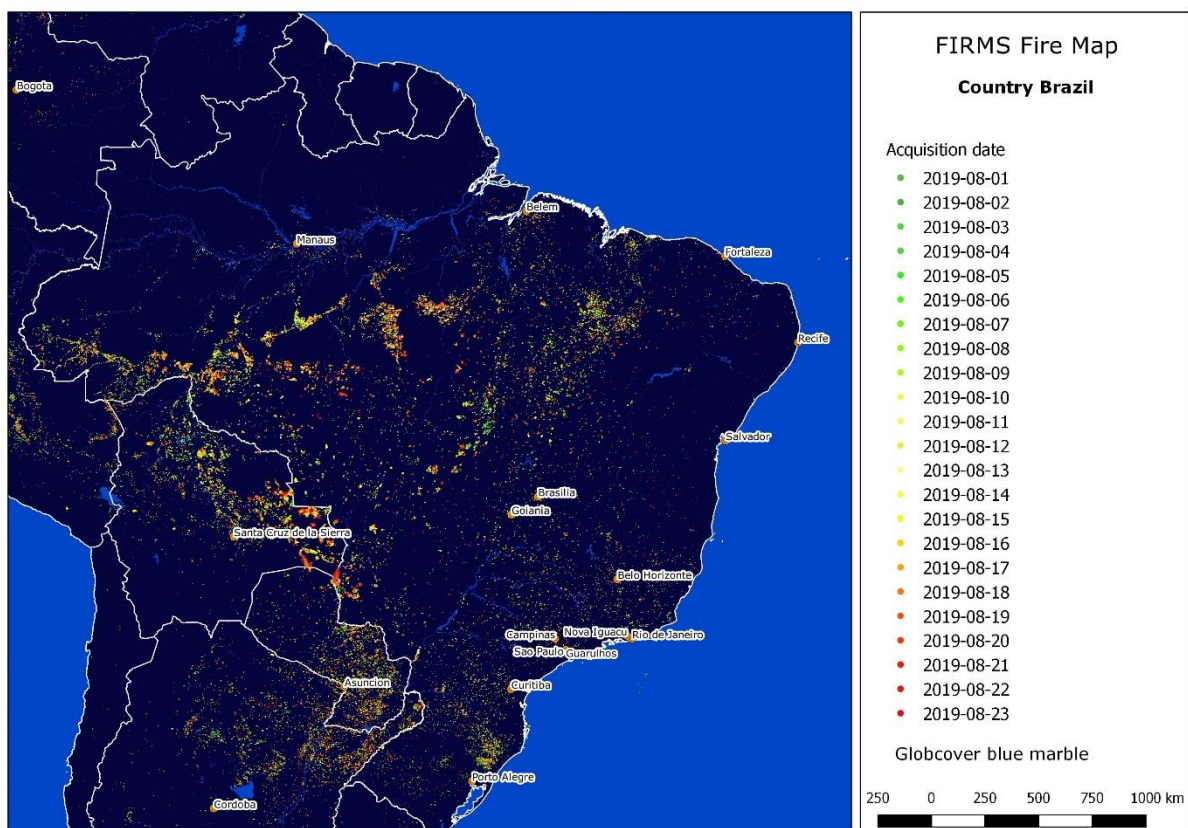


Burning facts

These days it is a political issue, that forests were set on fire in Brazil, probably to gain pasture and cropland for farming. In the context of climate change, these fires obviously add to the carbon-dioxide emission and the area will be lost as well as CO₂ reservoir.

The discussion is about the responsibility, which I don't want to comment, but it was mentioned, that there was an announcement by farmers for August 10, 2019 to set some area on fire in Brazil

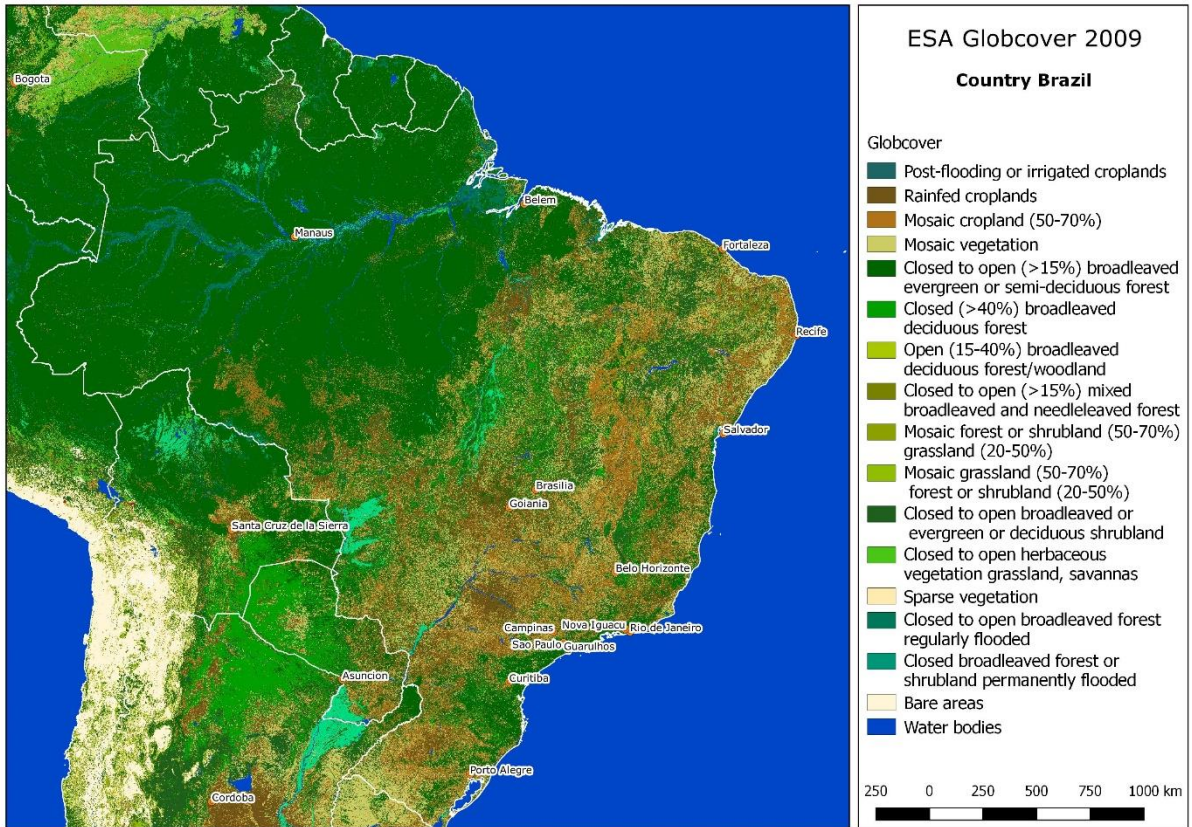
The following maps show data derived from FIRMS (Fire Information for Resource Management System), which is from NASA. You can download point shape-files showing the location of fire events.



The color coding of the points is according to the dates, when the data was acquired. Everything in green is before August 10, and later dates are color coded from yellow to red.

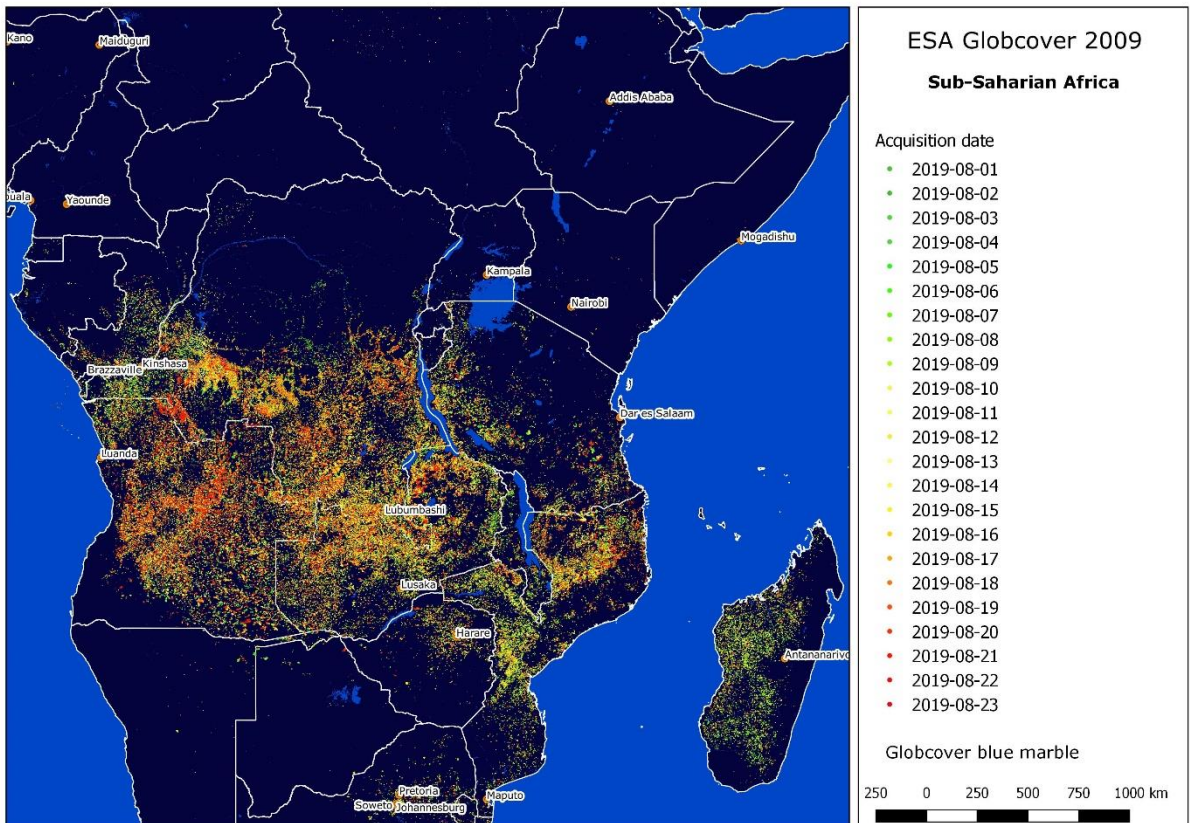
In the background you see a globcover layer from ESA with a blue marble legend, which simulates earth at night and give a good contrast. The size of the points is quite small to prevent overlaying points.

The surface has different ecosystems and the ESA globcover layer from 2009 shows the spatial distribution of these ecosystems. The data-set is already 10 years old and obviously in some regions the ecosystems have changed already most likely from forest to crop- or grassland.

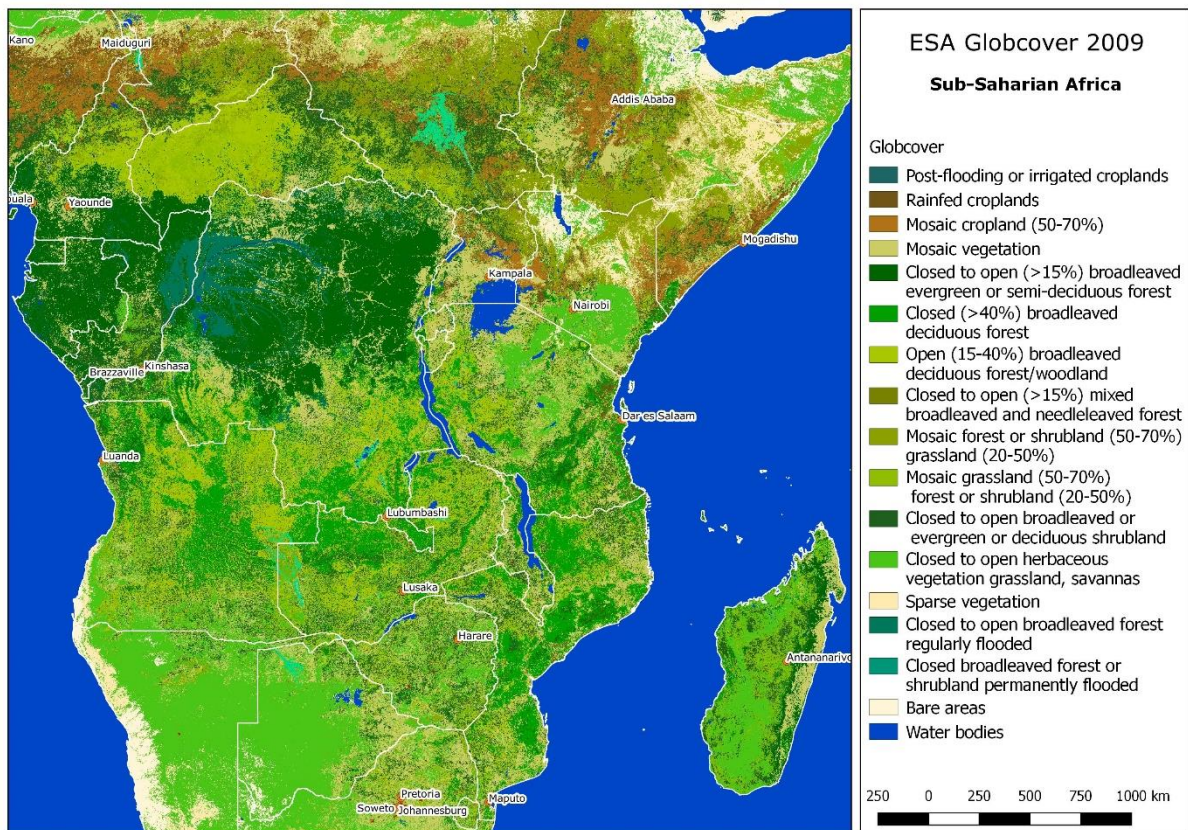


We can see from the two maps, that partly the fires are located within the rainforest area of the Amazonas.

When we look to Sub-Sahara Africa, we find there as well a lot of fires, which are burning these days.



Is there a difference of effected ecosystems, when we compare different countries in South America with Sub Sahara Africa? The maps itself don't give us a clear picture.



It is possible to extract the ecosystem information for each detected fire and then aggregate the results.

The aggregation was based on the different ecosystem and resulted in three classes.

Those classes are:

1. Crop-/Grass- and Shrubland, which is anything, which is not forest, but vegetated.
2. Closed to open forests, which are forest, but partly open where shrub and grass is growing.
3. Closed to open wet forests, which are as partly open but seasonal or permanently wet.

The second aggregation was made by country. The following table shows an overview of the result. In nine selected countries the incredible amount of **326.363** fires was detected within 22 days.

Label	Class	Angola	Congo (Democratic Republic of the)	Madagascar	Mozambique	Tanzania	Zambia	Bolivia	Brazil	Paraguay
Rainfed croplands	1	2	35		71	124	1	376	1655	150
Mosaic cropland (50-70%) / vegetation (grassland/shrubland/forest) (20-50%)	1	15	63		63	23		2212	5743	1160
Mosaic vegetation (grassland/shrubland/forest) (50-70%) / cropland (20-50%)	1	3870	14929	131	3861	2011	2066	1311	3650	408
Closed to open (>15%) broadleaved evergreen or semi-deciduous forest (>5m)	2	373	10904	143	44	56	6	13137	44260	1864
Closed (>40%) broadleaved deciduous forest (>5m)	2	19537	20861	786	9951	3384	12985	1657	3767	1468
Open (15-40%) broadleaved deciduous forest/woodland (>5m)	2	23095	17603		8114	5023	16379			333
Closed (>40%) needleleaved evergreen forest (>5m)	2					1				
Open (15-40%) needleleaved deciduous or evergreen forest (>5m)	2	46	61		231	119				
Closed to open (>15%) mixed broadleaved and needleleaved forest (>5m)	2	10	2			1	2			
Mosaic forest or shrubland (50-70%) / grassland (20-50%)	2	1011	209	224	58	94	347	61	249	
Mosaic grassland (50-70%) / forest or shrubland (20-50%)	1	424	38	3087	6	24	120	6	15	1
Closed to open (>15%) (broadleaved or needleleaved, evergreen or deciduous) shrubland (<5m)	1	11081	4908	2327	5008	1699	9301	1664	7452	655
Closed to open (>15%) herbaceous vegetation (grassland, savannas or lichens/mosses)	1	2624	245	3359	123	302	800	399	44	
Sparse (<15%) vegetation	1	3	2				8	19	14	1
Closed to open (>15%) broadleaved forest regularly flooded (semi-permanently or temporarily) - Fresh or brackish water	3	22	3774			165	20	79	344	
Closed (>40%) broadleaved forest or shrubland permanently flooded - Saline or brackish water	3		1	2				1	7	
Closed to open (>15%) grassland or woody vegetation on regularly flooded or waterlogged soil - Fresh, brackish or saline water	3	347	685			38	378	1311	818	226
Sum of detected fires		62460	74320	10059	27530	13064	42413	22233	68351	5933

Aggregated overview by country.

Number of detected fires with Modis (optical satellite) from August 1, - August 22, 2019 by FIRMS

