INPE - Instituto Nacional de Pesquisas Espaciais
Programa Queimadas
Monitoramento por Satélites

ACTUALIZACIÓN DEL SISTEMA DE MONITOREO DEL INPE - 2018

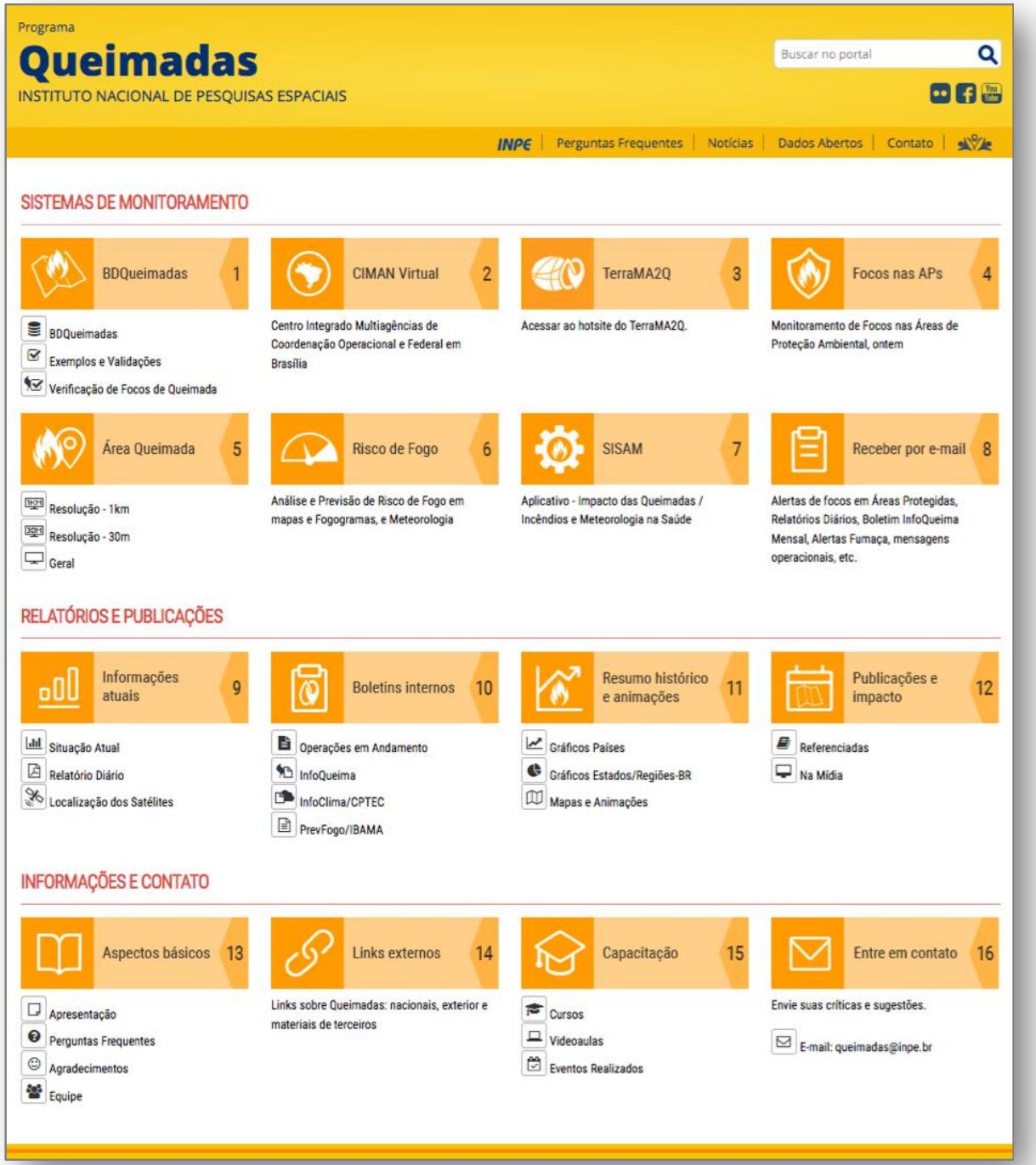
Fabiano Morelli

09 – Oct – 2018

REDLATIF Annual Team Meeting

Red Latinoamericana de Teledetección e Incendios Forestales

http://www.inpe.br/queimadas



CAMBIO DE LA BASE DE DATOS DE FOCOS

14 de junio de 2018, versión "Base 2"

- **Cambio del algoritmo y datos de detección de focos "Collection 5" de la NASA y la Universidad de Maryland por la versión "Collection 6";**
- **Actualización de todo base de datos de focos (~60 millones de puntos para ~230 millones)**
  - TERRA desde 01 / Nov / 2000;
  - AQUA desde 04 / Jul / 2002;
  - VIIRS desde 20 / Jan / 2012

•**Problemas en la actualización de las bases de país, estados y otros atributos**

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ACTUALIZACIÓN DE ESTADÍSTICAS

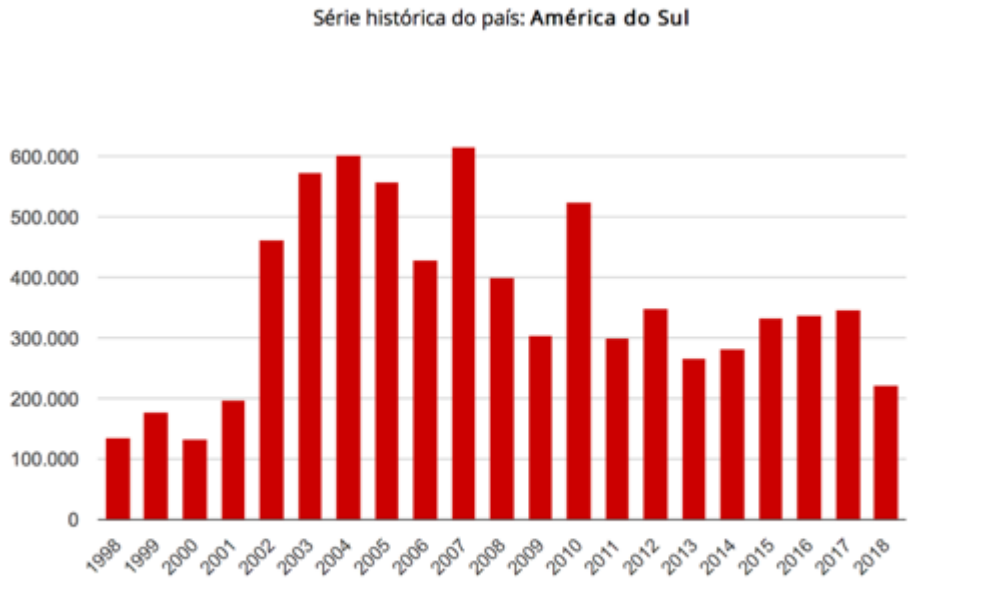

Figura 1 - Série histórica do total de focos ativos detectados pelo satélite de referência, no período de 1998 até 08/10/2018.

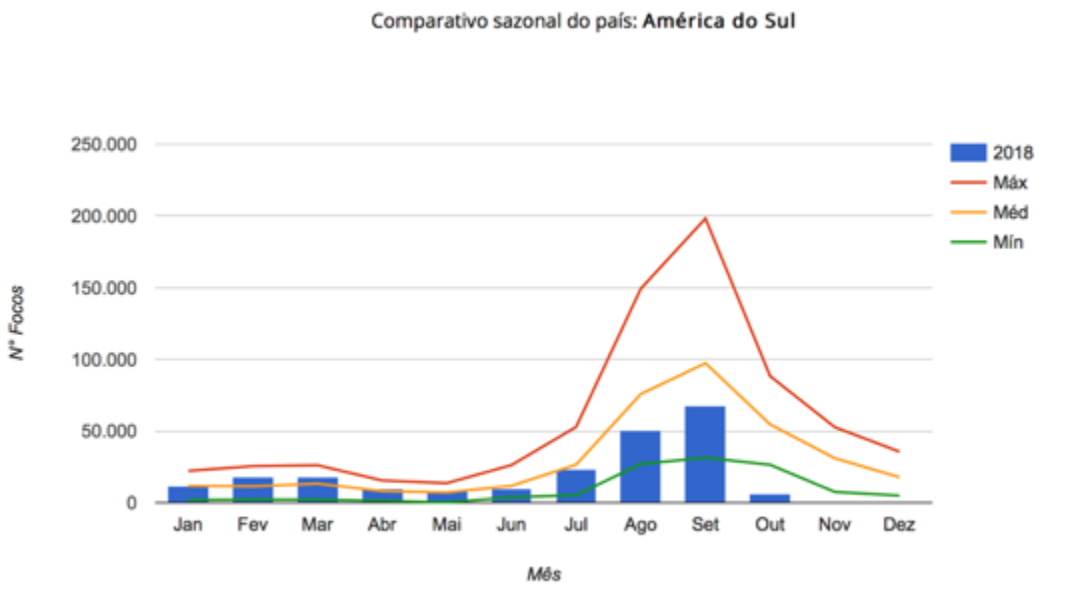

Figura 2 - Comparativo dos dados do ano corrente com os valores máximos, médios e mínimos, no período de 1998 até 08/10/2018.

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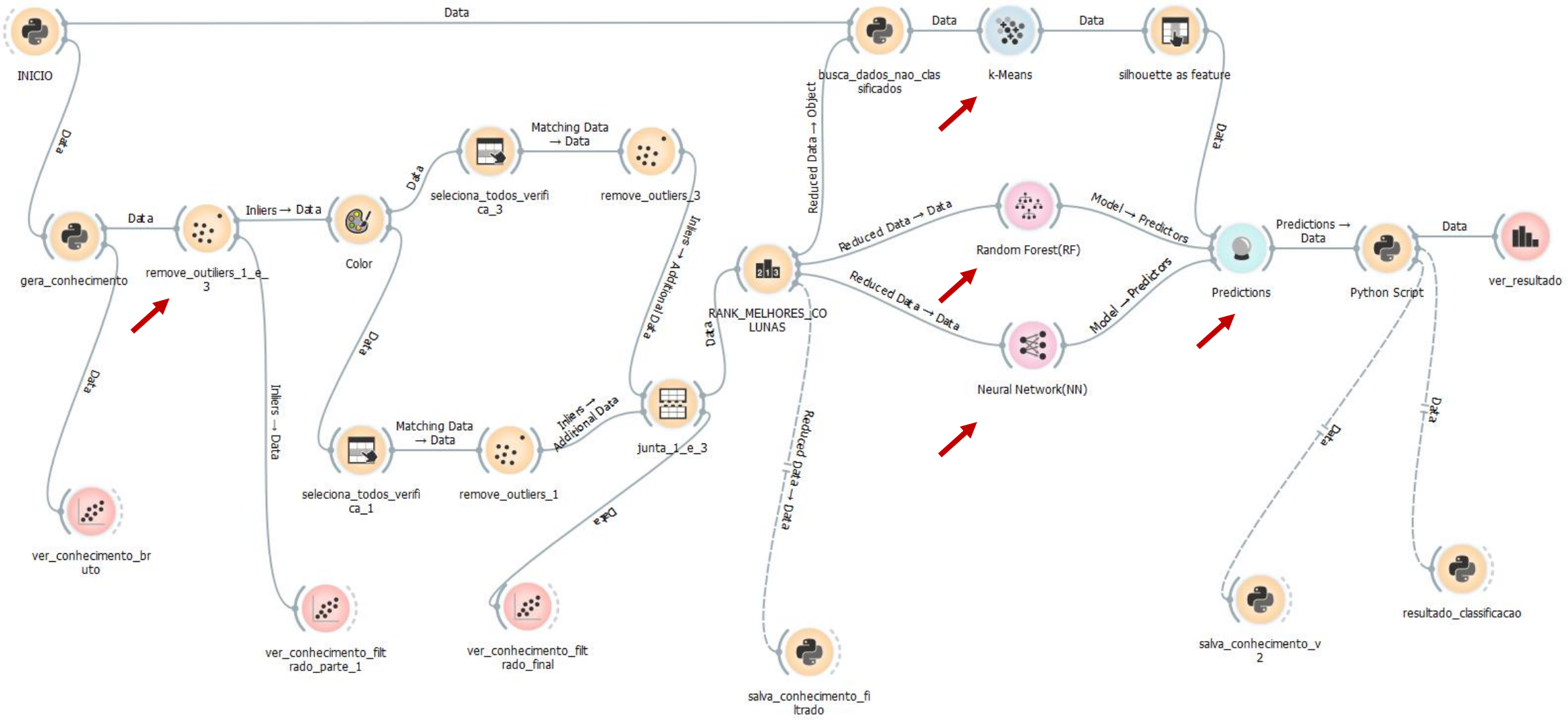
REPROCESAMIENTO DE PRODUCTOS

Área Queimada

Área queimada (km²) por bioma por ano

Ano	Amazônia	Caatinga	Cerrado	Mata Atlântica	Pampa	Pantanal	Total anual
2002	73.622	68.351	110.727	8.264	27	20.635	281.626
2003	113.167	82.048	175.140	41.607	2.488	7.912	422.362
2004	157.007	41.289	198.684	16.397	1.589	18.092	433.058
2005	160.858	65.108	181.690	20.589	1.156	27.472	456.873
2006	97.316	39.492	118.109	29.973	1.870	7.418	294.178
2007	154.587	56.401	329.138	28.523	1.039	18.699	588.387
2008	74.692	50.507	139.458	24.967	1.452	11.253	302.329
2009	57.011	31.809	74.353	13.827	2.205	13.809	193.014
2010	112.814	50.955	304.825	22.968	811	17.743	510.116
2011	40.557	24.691	134.988	19.713	830	6.971	227.750
2012	66.866	46.536	247.451	15.711	1.970	13.266	391.800
2013	36.009	28.394	111.004	10.816	783	6.575	193.581
2014	61.324	28.059	170.756	14.322	762	2.191	277.414
2015	93.677	47.543	190.506	13.579	1.350	7.871	354.526
2016	65.139	33.309	151.142	18.608	1.527	11.245	280.970
2017	91.240	29.704	158.352	16.260	1.608	9.829	306.993
2018	17.553	5.505	41.895	9.816	579	1.166	76.514
Todos	1.473.439	729.701	2.838.218	325.940	22.046	202.147	5.591.491

Evaluación del Producto con Learning Machine y Inteligência Artifical en Python



INICIO

Info

Execute python script.

Input variables:

- in_data, in_datas
- in_learner, in_learners
- in_classifier, in_classifiers
- in_object, in_objects

Output variables:

- out_data
- out_learner
- out_classifier
- out_object

Library

*escolhe_passagem_mineraca

+ − Update More

Autorun on new data

Run

Python Script

```
#######################################
id_cena='LS82210742018048'
#id_cena='????????????????'
#######################################

from Orange.data.pandas_compat import table_from_frame
import pandas as pd
from sqlalchemy import create_engine, pool
import datetime as dt
import glob
import os

# Apaga arquivos existentes
for arq in glob.glob('/dados/orange/csv/*.csv'):
    os.remove(arq)
    print('Apaga', arq)

banco = 'postgresql://queimadas:Qmd@1998@barcelona.dgi.inpe.br:5432/aqml'
engine = create_engine(banco, poolclass=pool.NullPool)
sql = "select id_cena from controle_processamento where valido group by 1 order by 1"
print(sql)
df_cenas = pd.read_sql_query(sql, con=engine)
engine = None
print('-------------------------')
print('Catalogo de cenas processadas. Total=%s atualizado em:' % len(df_cenas),
dt.datetime.now().strftime('%Y-%m-%d %H:%M:%S'))
print('-------------------------')

df_cenas = df_cenas[df_cenas['id_cena']==id_cena].copy()

if not len(df_cenas):
    print('NADA ENCONTRADO')
else:
    print(id_cena)
out_data = table_from_frame(df_cenas)
```

Console

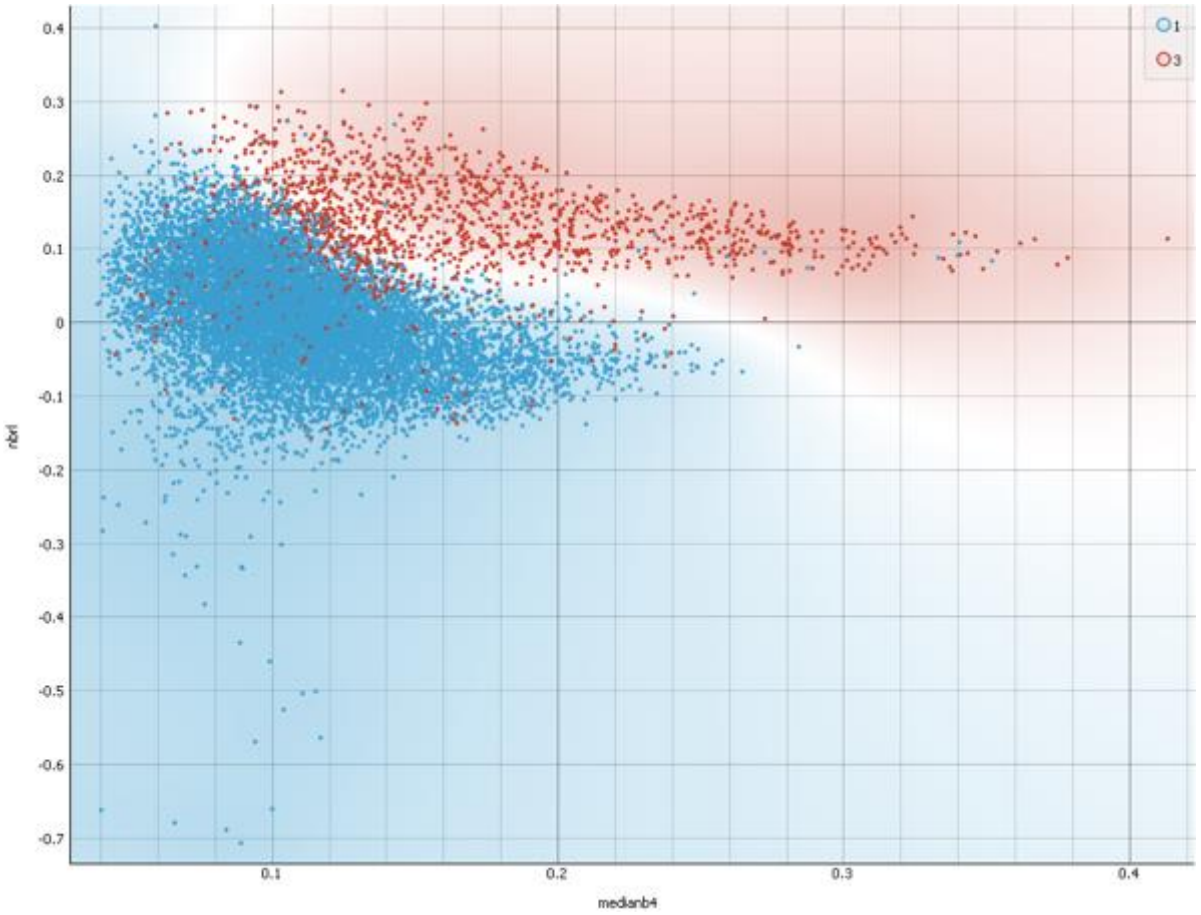
```
Python 3.6.6 |Anaconda, Inc.| (default, Jun 28 2018, 11:27:44) [MSC v.1900 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
(PythonConsole)
>>>
```

orange

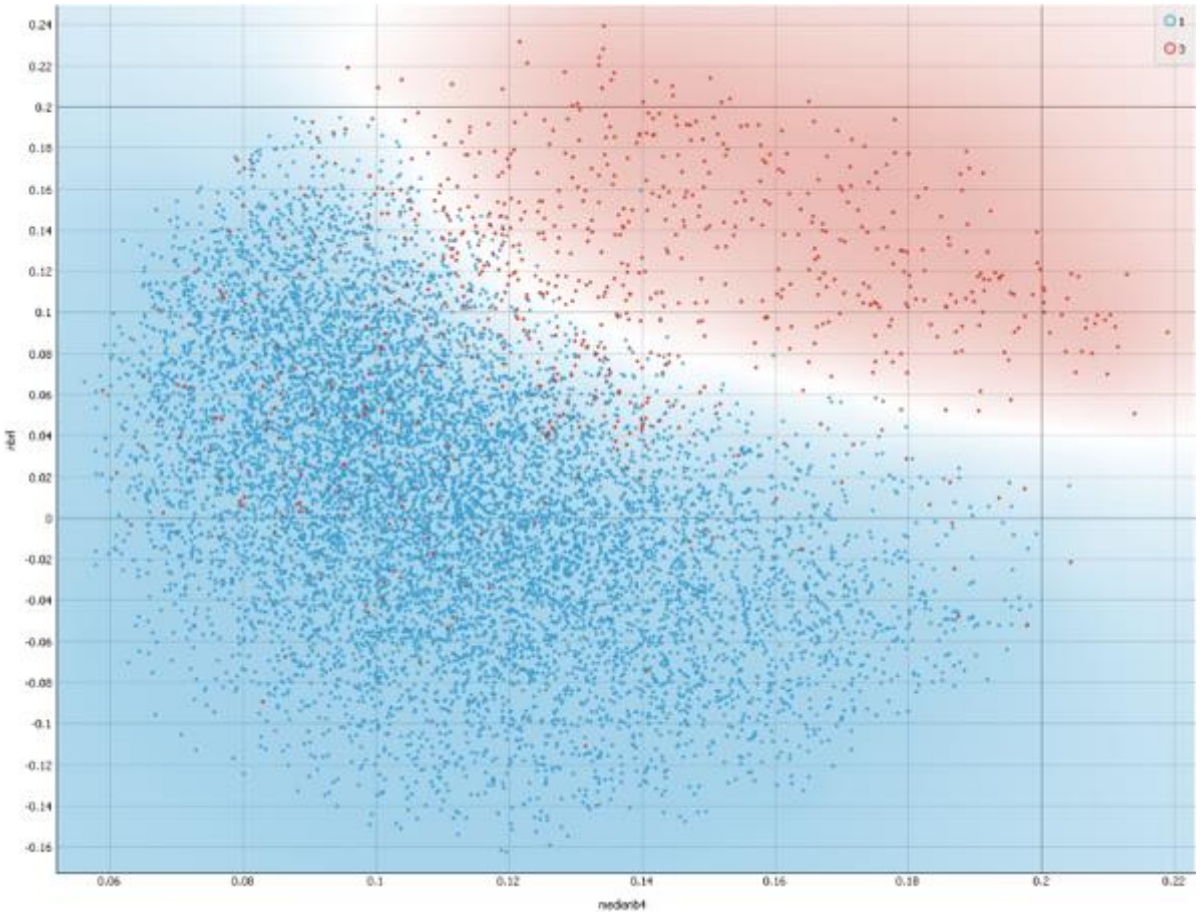
https://orange.biolab.si

Automación con Python

Conocimiento bruto



Conocimiento filtrado los outliers



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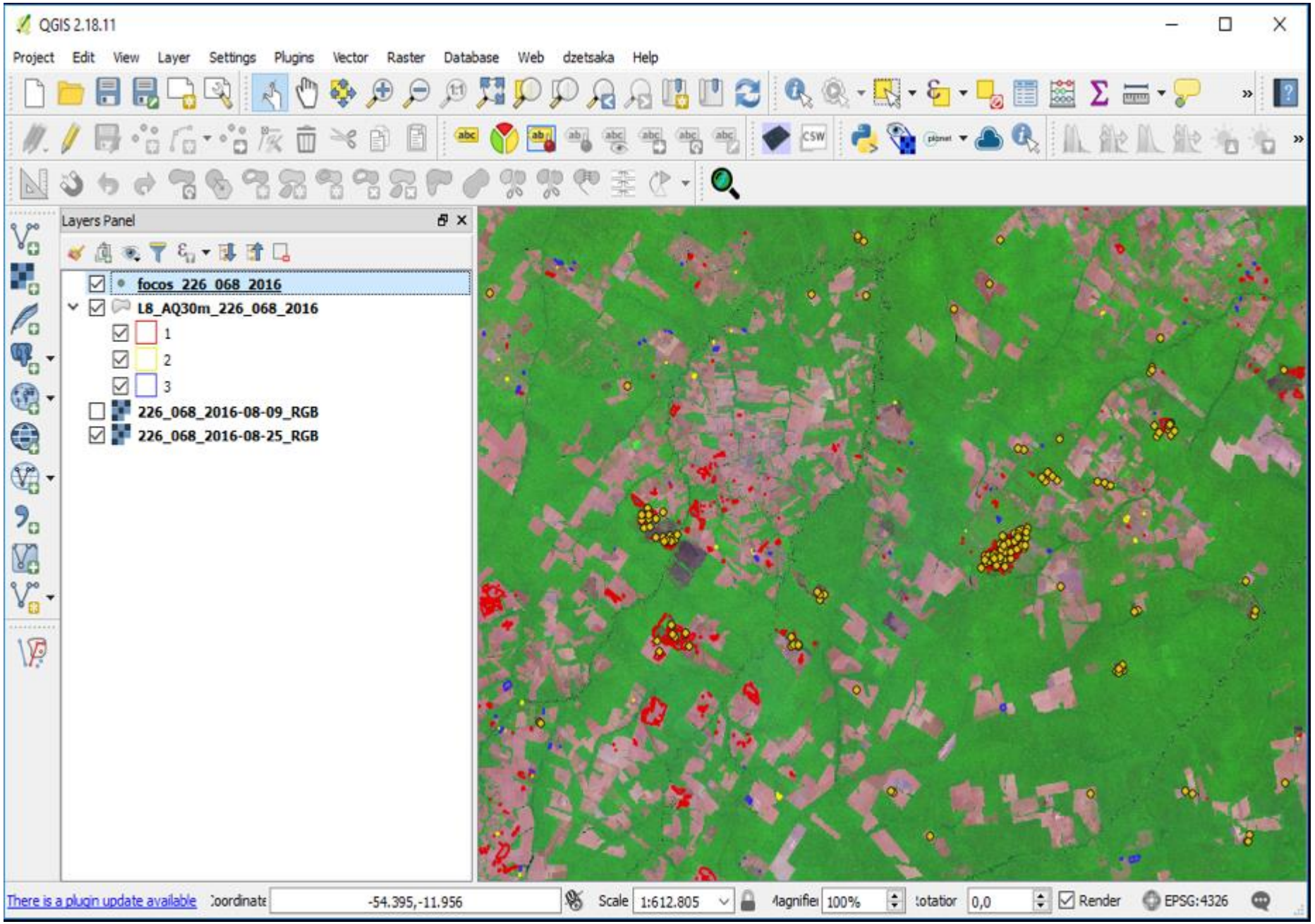
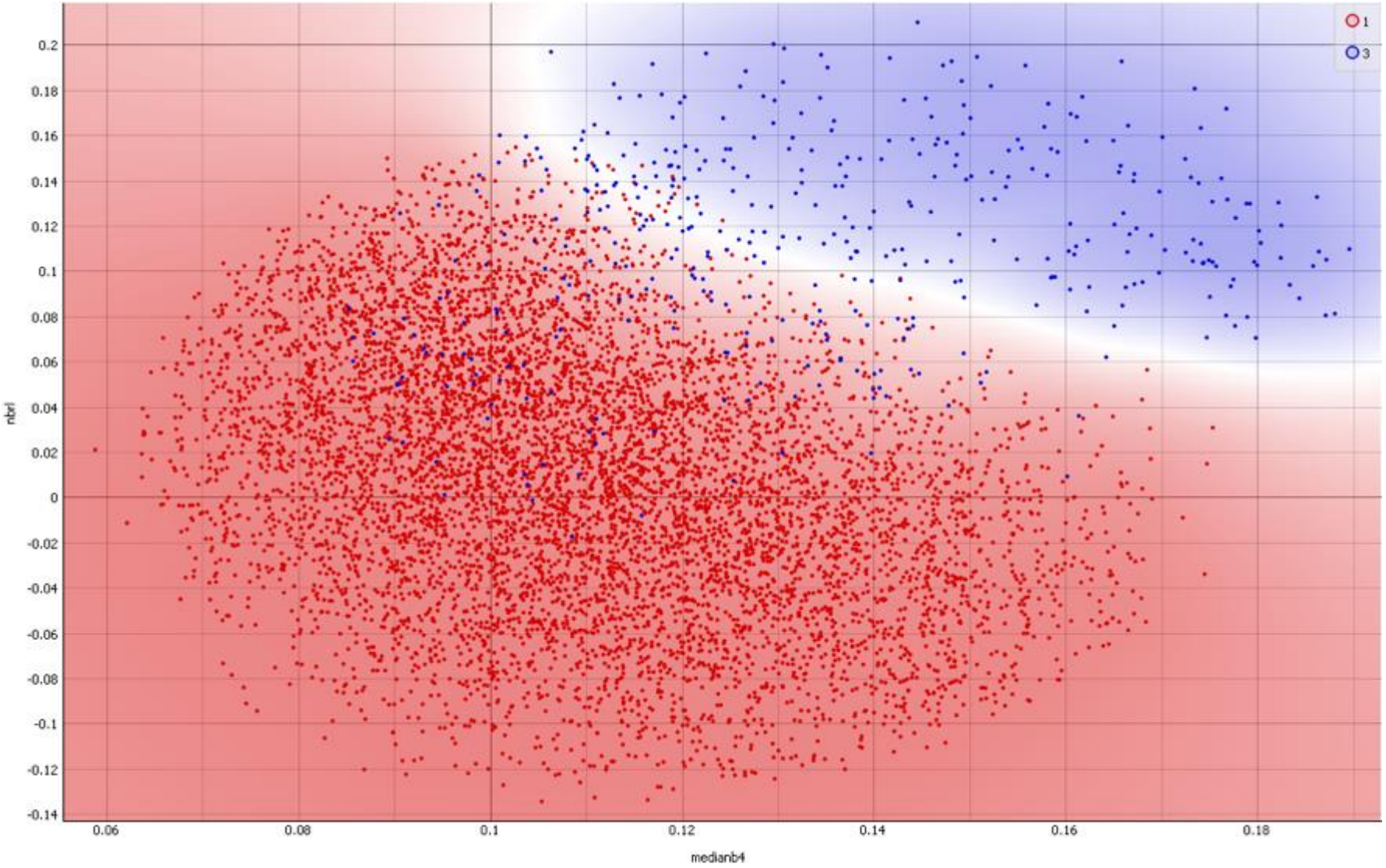
Auditoria

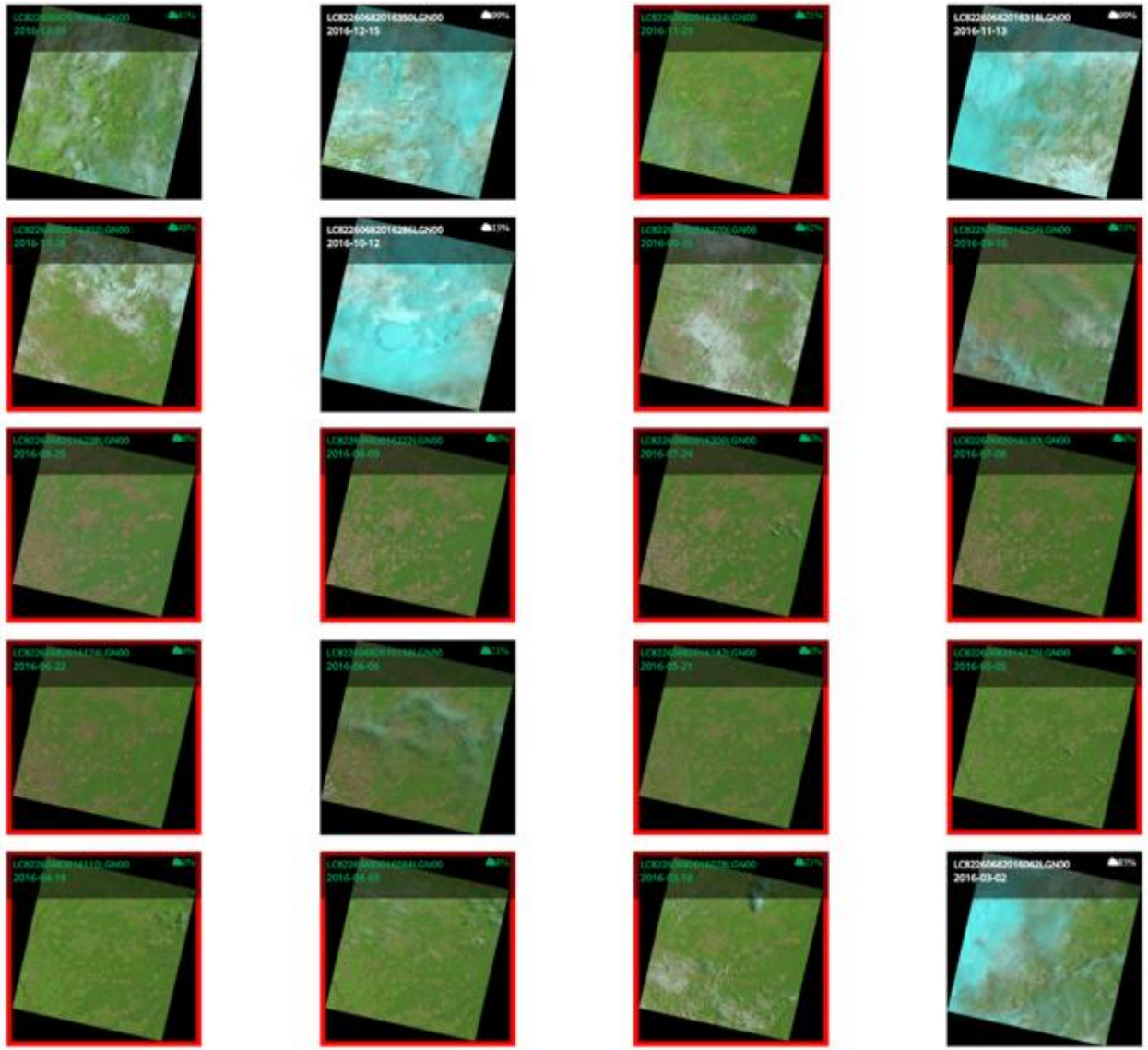


Conhecimento Auditado

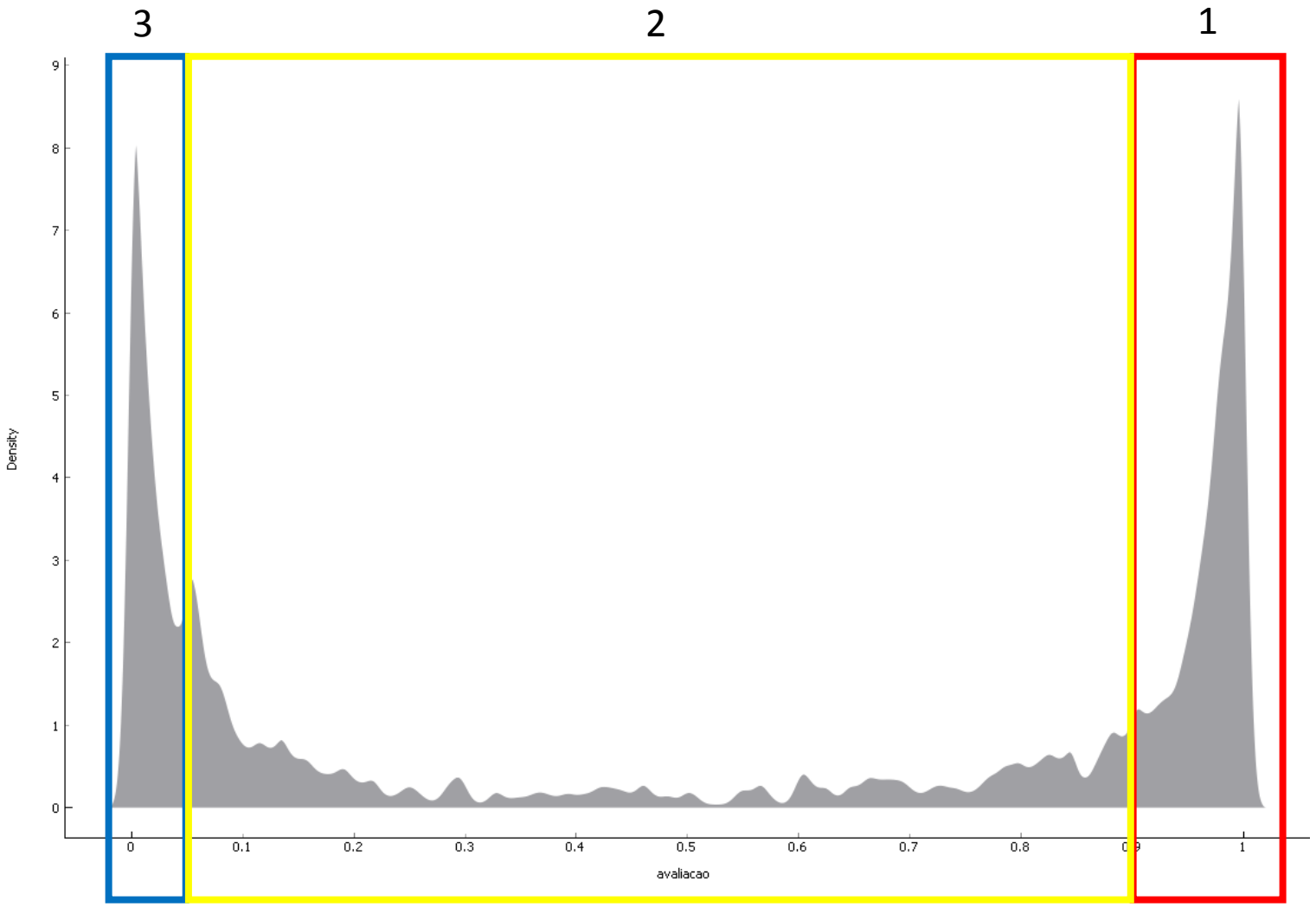


Procesamiento para todas las Imagens

CENAS	Cena Atual	Cena Anterior
LC82260682016094LGN00 LC82260682016078LGN00	2016-04-03	2016-03-18
LC82260682016110LGN00 LC82260682016094LGN00	2016-04-19	2016-04-03
LC82260682016126LGN00 LC82260682016110LGN00	2016-05-05	2016-04-19
LC82260682016142LGN00 LC82260682016126LGN00	2016-05-21	2016-05-05
LC82260682016174LGN00 LC82260682016142LGN00	2016-06-22	2016-05-21
LC82260682016190LGN00 LC82260682016174LGN00	2016-07-08	2016-06-22
LC82260682016206LGN00 LC82260682016190LGN00	2016-07-24	2016-07-08
LC82260682016222LGN00 LC82260682016206LGN00	2016-08-09	2016-07-24
LC82260682016238LGN00 LC82260682016222LGN00	2016-08-25	2016-08-09
LC82260682016254LGN00 LC82260682016238LGN00	2016-09-10	2016-08-25
LC82260682016270LGN00 LC82260682016254LGN00	2016-09-26	2016-09-10
LC82260682016302LGN00 LC82260682016270LGN00	2016-10-28	2016-09-26
LC82260682016334LGN00 LC82260682016302LGN00	2016-11-29	2016-10-28



Resultado del Proceso



1 - Polígono de queimada
2 - Polígono de dúvida queimada
3 - Polígono falsa detecção de queimada

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Órbita Ponto

Instruções

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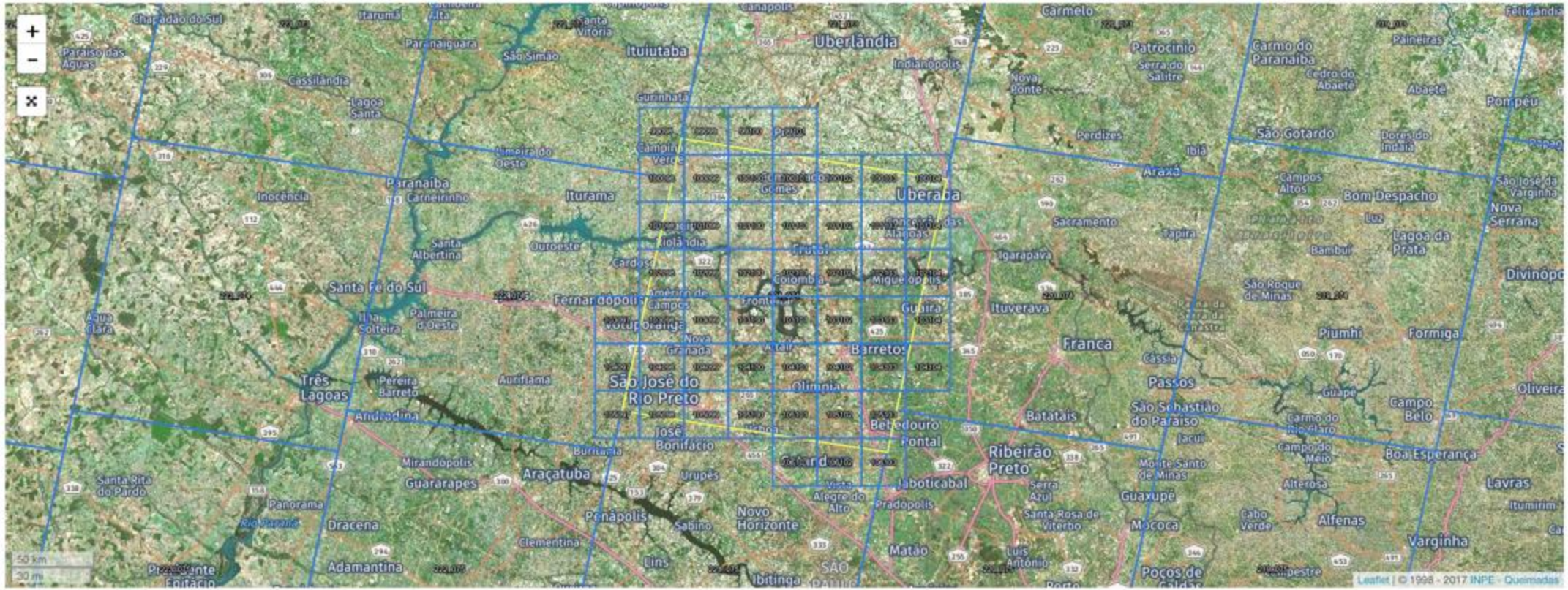
Anos | 221_074



Instruções

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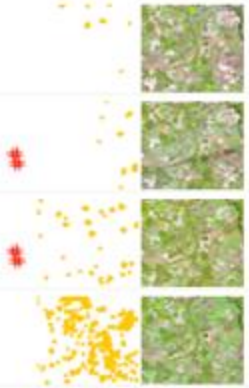
2018 | 221_074

Passagens: 11



Data: 2018-08-12

Data: 2018-07-27

Data: 2018-07-11

Data: 2018-06-25

Instruções

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RGB 2018-07-27

2018 | 221_074 | 1 - Queimac

Passagens: 11

21	237654		Não « » Sim	
22	237740		Não « » Sim	
23	237777		Não « » Sim	
24	237781		Não « » Sim	
25	237783		Não « » Sim	✔
26	237819		Não « » Sim	

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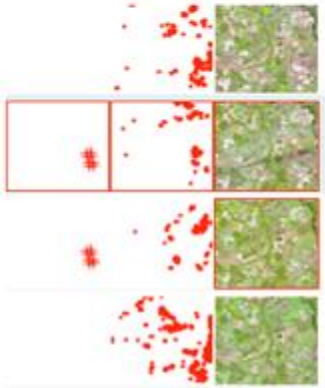
RGB 2018-07-11

2018 | 221_074 | 1 - Queimac

Passagens: 11



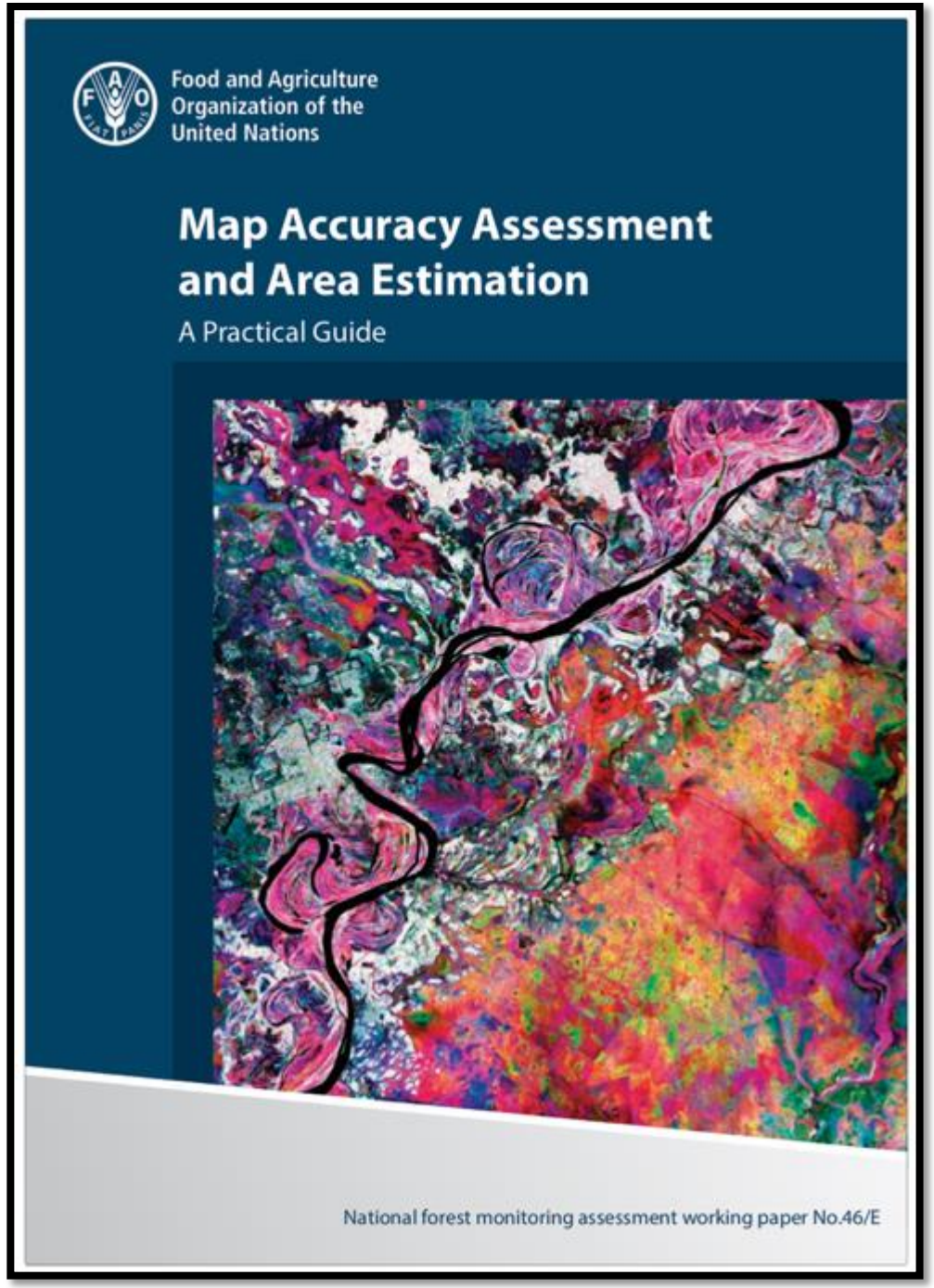
Data: 2018-08-12

Data: 2018-07-27

Data: 2018-07-11

Data: 2018-06-25

21	237654		Não « » Sim	
22	237740		Não « » Sim	
23	237777		Não « » Sim	
24	237781		Não « » Sim	
25	237783		Não « » Sim	✓
26	237819		Não « » Sim	



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journal homepage: www.elsevier.com/locate/rse

Making better use of accuracy data in land change studies: Estimating accuracy and area and quantifying uncertainty using stratified estimation

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28 a 31 de Maio de 2017
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Ferramentas Web-Gis para avaliar exatidão de mapeamento de uso e cobertura da terra no Cerrado brasileiro

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Abstract: The elaboration of land use and land cover thematic maps, based on satellite remote sensing data, for the monitoring of natural resources, has been quite common in Brazilian governmental institutions related to the environment, agriculture, geography and statistics areas. Most of the time these mappings are performed on a large territorial scale, covering entire biomes or several aggregate states, which makes difficult to carry out field work to assess the accuracy of the mapping done. Specific applications that use the Web-GIS concept have been developed and successfully employed for validation tasks, aiming to associate an accuracy value with the mapping information. This paper demonstrates the development and practical implementation of an application to validate land use mapping data in the Brazilian Cerrado (TerraClass Cerrado), which can be easily adapted to other biomes.