



3º BIG TechTalks

Acesso, Visualização e Processamento de Imagens Sentinel-2 utilizando Python

25/04/2025

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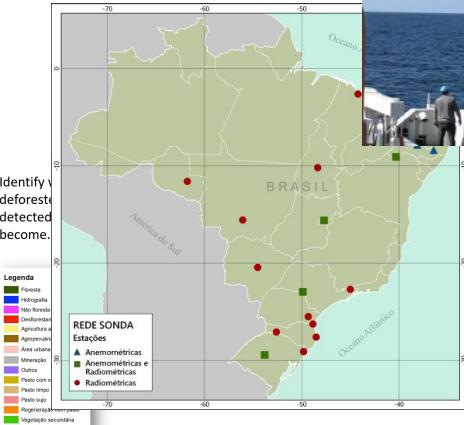
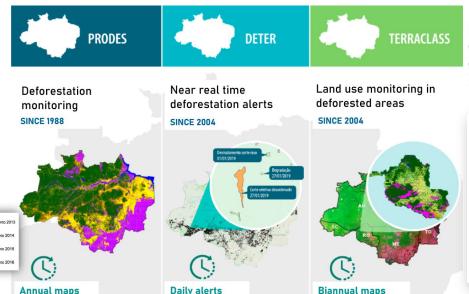
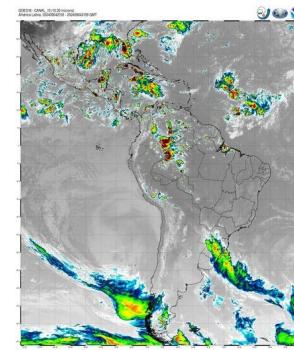
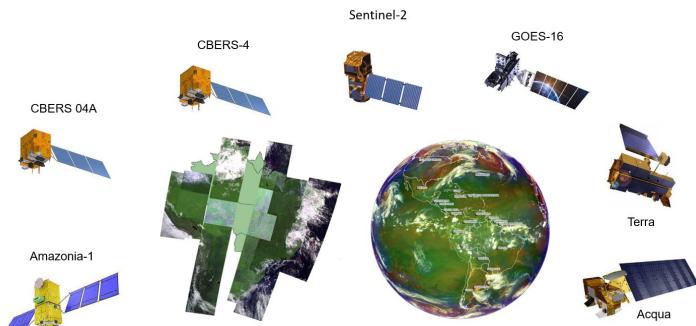


MINISTÉRIO DA
CIÊNCIA, TECNOLOGIA
E INOVAÇÃO



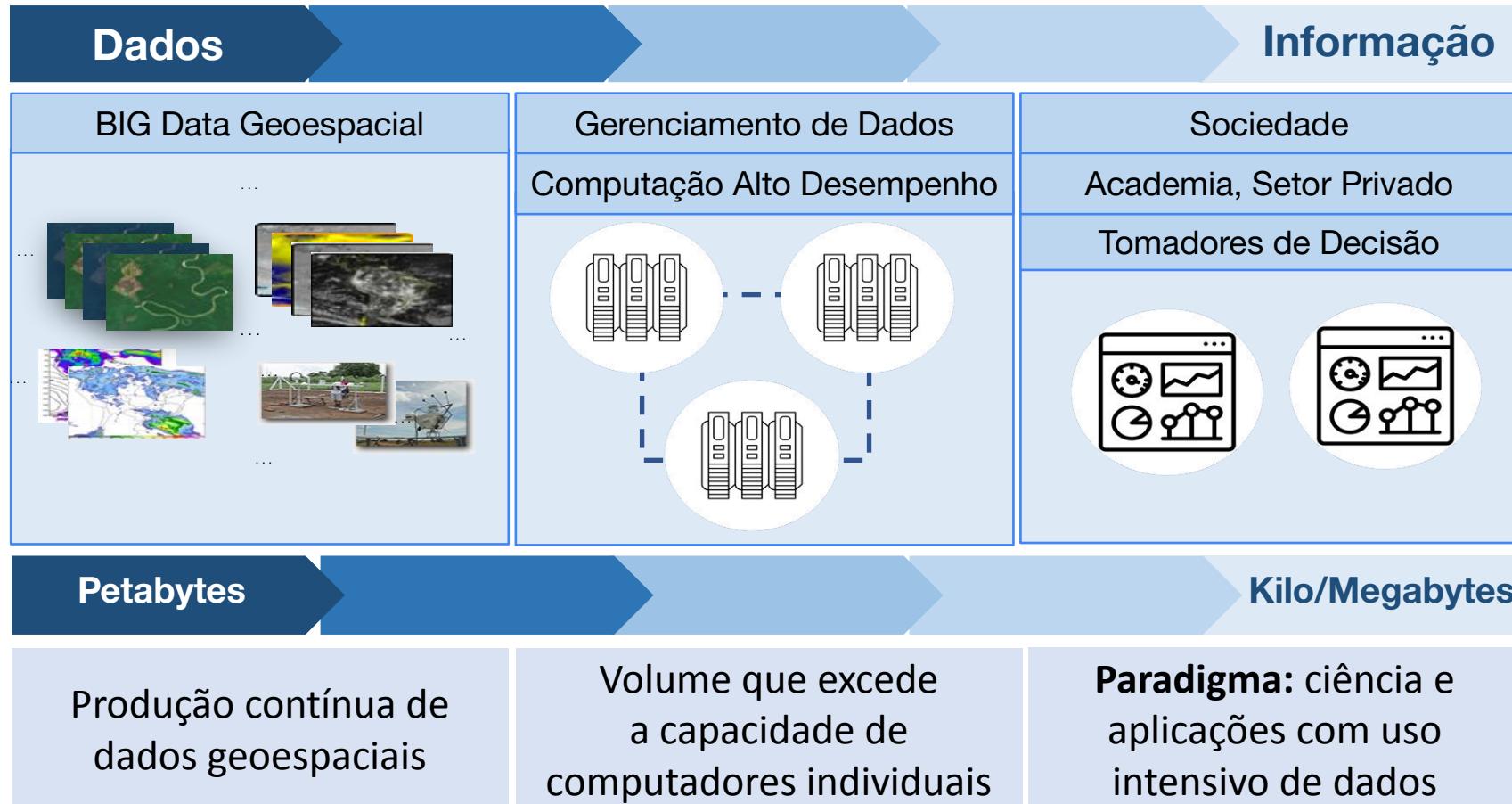
BIG: Programa transversal às áreas da CGCT

Objetivo: Integração e modernização do acesso às bases de dados geoespaciais do INPE + processamento analítico



Fonte: <http://sonda.ccst.inpe.br/>

BIG – Plataforma Ciência e Aplicações Intensivas em Dados





Bem Vindos ao Portal de Dados Geoespaciais do INPE

Explore dados, serviços e aplicações geoespaciais abertas

Pesquisar...



Satélite



Clima e Tempo



Queimadas



Uso e Cobertura



Desastres



Aplicações



Search

<https://data.inpe.br/stac/browser>

Description

This is the landing page for the INPE STAC server. The SpatioTemporal Asset Catalogs (STAC) provide a standardized way to expose collections of spatial temporal data. Here you will find collections of data provided by projects and areas of INPE.

Additional Resources

- API documentation in [HTML](#)

Catalogs 63

Tiles

List

Ascending

Descending

Filter catalogs by title

AMAZONIA-1/WFI - Level-4-SR - Cloud Optimized GeoTIFF

AMAZONIA-1/WFI - Level-4 Surface Reflectance product. L4 SR product provides orthorectified surface reflectance images. This dataset is provided as Cloud...

1/1/2024, 12:00:00 AM UTC - 3/9/2025, 12:00:00 AM UTC

CBERS-4/MUX - Level-2-DN

CBERS-4/MUX - Level-2 Digital Number. Level 2 products have radiometric correction and geometric correction using satellite ephemeris and attitude data (syste...

12/8/2014, 12:56:32 PM UTC - 3/1/2025, 2:31:45 AM UTC

CHARTER - WPM

This collection contains images from the CBERS-4A/WPM over Brazil. The data is processed by the Disasters Charter and provided as Cloud Optimized GeoTIFF (COG)....

12/27/2023, 12:00:00 AM UTC - 5/14/2024, 12:00:00 AM UTC

LCC - Pantanal - LC8 30m 16D STK

This is a land cover classification map of Brazilian Pantanal, from January to December of 2018. This classification was made on top of Landsat-8 days data cube...

1/1/2017, 12:00:00 AM UTC - 12/31/2019, 12:00:00 AM UTC

GOES-13/Imager - Level-3 - VIS/IR Imagery (Binary)

GOES-13 is a satellite of the Geostationary Operational Environmental Satellite (GOES) series operated by the National Oceanic and Atmospheric Administration (NOAA)....

11/25/2011, 3:00:00 PM UTC - 1/8/2018, 3:00:00 PM UTC

MERGE - Daily Gridded Precipitation over South America

Satellite precipitation estimates combined with surface observations over South America. Satellite estimates for the first few hours are provided by th...

6/1/2000, 12:00:00 PM UTC - 1/31/2025, 12:00:00 PM UTC

Produto	Nível	Satélite/Sensor	Período	Cobertura
CB4-MUX-L2-DN	DN	CBERS-4/MUX	01/2019 - 02/2025	Brasil
CB4-MUX-L4-DN	DN	CBERS-4/MUX	01/2019 - 02/2025	Brasil
CB4-MUX-L4-SR	SR	CBERS-4/MUX	01/2016 - 02/2025	Brasil
CBERS4-MUX-2M	SR	CBERS-4/MUX	01/2016 - 01/2025	Brasil
CB4-PAN10M-L2-DN	DN	CBERS-4/PAN10	01/2019 - 02/2025	Brasil
CB4-PAN10M-L4-DN	DN	CBERS-4/PAN10	01/2019 - 02/2025	Brasil
CB4-PAN5M-L2-DN	DN	CBERS-4/PAN5	01/2019 - 02/2025	Brasil
CB4-PAN5M-L4-DN	DN	CBERS-4/PAN5	01/2019 - 02/2025	Brasil
CB4-WFI-L2-DN	DN	CBERS-4/WFI	01/2019 - 02/2025	Brasil
CB4-WFI-L4-DN	DN	CBERS-4/WFI	01/2019 - 02/2025	Brasil
CB4-WFI-L4-SR	SR	CBERS-4/WFI	01/2016 - 02/2025	Brasil
CBERS4-WFI-16D	SR	CBERS-4/WFI	01/2016 - 02/2025	Brasil

Produto	Satélite/Sensor	Período	Cobertura
CB4A-WFI-L4-SR	CBERS4/WFI	01/2020 - 02/2025	Brasil
CBERS-WFI-8D	CBERS4 e 4A/WFI	01/2020 - 02/2025	Brasil
AMZ1-WFI-L4-SR	Amazonia1/WFI	01/2024 - 02/2025	Brasil
CB4A-WPM-PCA-FUSED	CBERS4A/WPM	03/2023 - 02/2025	Brasil

Produto	Satélite/Sensor	Período	Cobertura
sentinel-1-grd-bundle	Sentinel-1	11/2021 - presente	Brasil
S2_L1C_BUNDLE	Sentinel-2/MSI	12/2021 - presente	Brasil
S2_L2A_BUNDLE	Sentinel-2/MSI	01/2022 - presente	Brasil
S2_L2A	Sentinel-2/MSI	01/2022 - presente	Brasil
S2-16D	Sentinel-2/MSI	01/2017 - presente	Brasil
sentinel-3-olci-l1-bundle	Sentinel-2/OLCI	03/2023 - presente	Brasil

Produto	Satélite/Sensor	Período	Cobertura
Landsat	Landsat 4,5,7,8 e 9/OLI	01/2004 - presente	Brasil
LANDSAT-16D	Landsat 4,5,7,8 e 9/OLI	01/2015 - 12/2024	Brasil

Produto	Satélite/Sensor	Período	Cobertura
Landsat	Landsat 4,5,7,8 e 9/OLI	01/2004 - presente	Brasil
LANDSAT-16D	Landsat 4,5,7,8 e 9/OLI	01/2015 - 12/2024	Brasil
mod11a2 / myd11a2	Terra-Aqua/MODIS	02/2000 - 02/2025	América Sul
mod13q1 / myd13q1	Terra-Aqua/MODIS	02/2000 - 02/2025	América Sul

Produto	Período	Cobertura
prec_merge_daily	06/2000 - 12/2024	América Sul
prec_merge_hourly	12/2009 - 02/2025	América Sul
samet_daily	01/2000 - 12/2024	América Sul
samet_hourly	04/2022 - 12/2024	América Sul
GOES16-L2-CMI	04/2019 - presente	América Sul
GOES13-L3-IMAGER	11/2011 - 01/2018	América Sul

Data Cube Explorer



<https://data.inpe.br/bdc/explorer>

PESQUISAR

RESULTADOS

Selecionar os Recursos

9 Data Cubes

13 Collections 1

AMAZONIA-1/WFI - Level-4...

CBERS-4/MUX - Level-4-SR ...

CBERS-4/WFI - Level-4-SR ...

CBERS-4A/WFI - Level-4-SR...

CBERS-4A/WPM - Multispectr...

GOES-13/Imager - Level-3 ...

GOES-16 Cloud & Moisture ...

Sentinel-2 - Level-1C

Sentinel-2 - Level-2A - C...

Sentinel-2 - Level-2A

LandSat Collection 2 - Le...

Sentinel-1 - Level-1 - In...

Sentinel-3/OLCI - Level-1...

4 Charter RS Collections

11 Classifications

11 Mosaics

Região

Brazil Data Cube

Ajuda Sobre

Leaflet | Brazil Data Cube

09/01/2024 28/05/2024 29/11/2024

Lat: -11.79292 | Lng: -45.57661 1 km

Ponto: -45.59600830078126 -11.763175819981782

Trajetória da Terra

2000 2005 2010 2015 2020

Terraclass Amazonia>No-Data
Mapbiomas V8:Soja
Mapbiomas V8:Outras Lavouras Temporárias
Mapbiomas V8:Algodão (beta)
Ibge Cobertura Uso Terra:Vegetação Campestre
Ibge Cobertura Uso Terra:Área Agrícola
Prodes Mata Atlântica:desmatamento

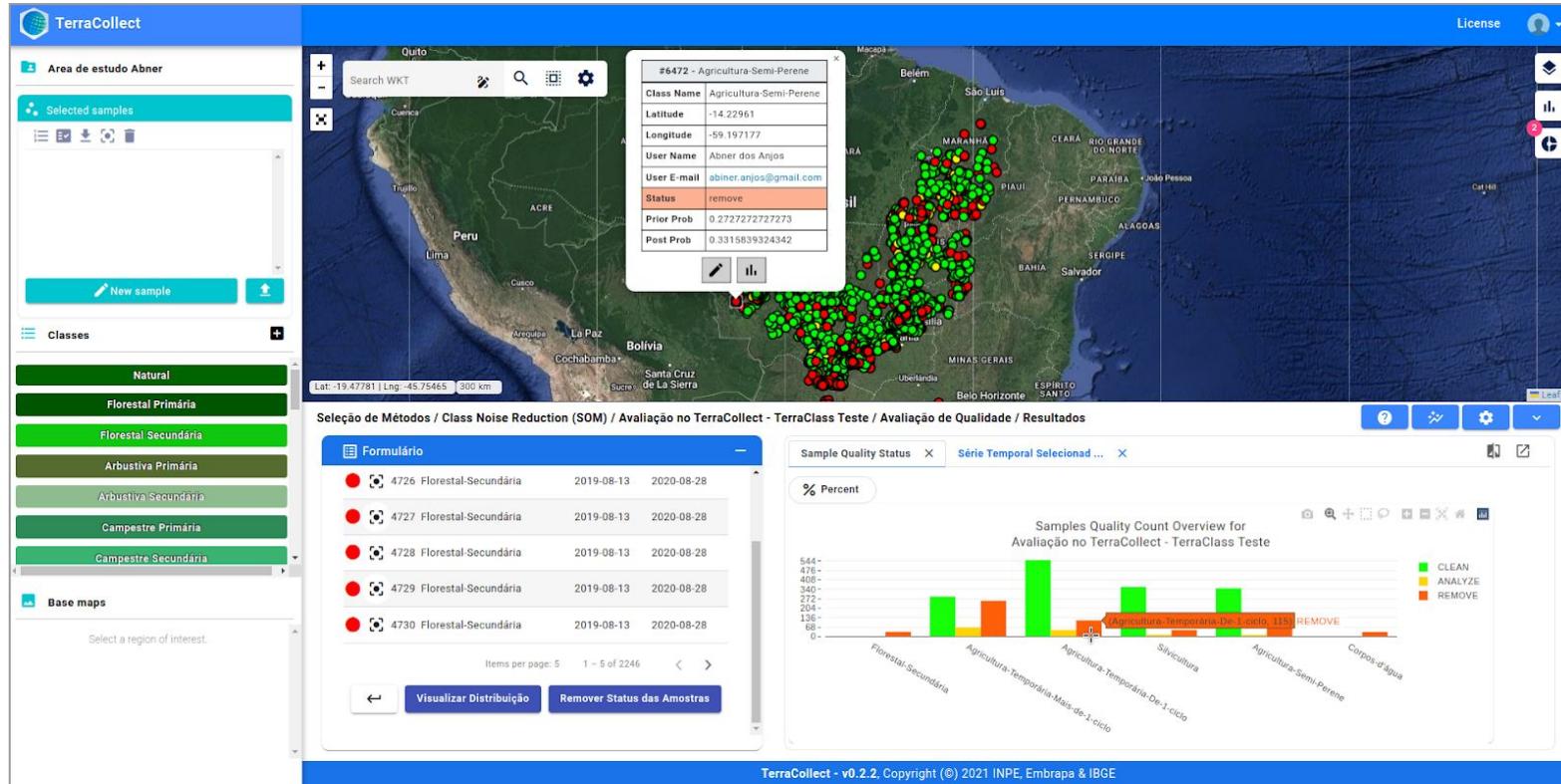
Série Temporal

2018 2019 2020 2021 2022 2023 2024

EVI:S2-16D-2
NDVI:S2-16D-2

Data Cube Explorer - v3.2.1, Copyright (©) 2019-2023 INPE

<https://data.inpe.br/bdc/terracollect>



The screenshot displays the TerraCollect web application interface. On the left, a sidebar titled "TerraCollect" shows a "Selected samples" list and a "Classes" section with categories: Natural, Florestal Primária, Florestal Secundária, Arbustiva Primária, Arbustiva Secundária, Campestre Primária, and Campestre Secundária. Below these are "Base maps" and a note to "Select a region of interest". A central map of South America highlights a study area in Brazil. A callout box provides details for a specific sample: #6472 - Agricultura-Semi-Perene, Latitude: -14.229961, Longitude: -59.197177, User Name: Abner dos Anjos, User E-mail: abiner.anjos@gmail.com, Status: remove, Prior Prob: 0.2727272727273, Post Prob: 0.3315859324342. The main content area shows a table of sample data and a bar chart titled "Samples Quality Count Overview for Avaliação no TerraCollect - TerraClass Teste". The chart compares sample counts across different land use classes: Florestal-Secundária, Agricultura-Temporária-Mais-de-1-ciclo, Silvicultura, Agricultura-Semiperene, and Corpos-d'água. The legend indicates three status categories: CLEAN (green), ANALYZE (yellow), and REMOVE (red).

Area de estudo Abner

Selected samples

New sample

Classes

Natural

Florestal Primária

Florestal Secundária

Arbustiva Primária

Arbustiva Secundária

Campestre Primária

Campestre Secundária

Base maps

Select a region of interest.

Items per page: 5 1 - 5 of 2246

Visualizar Distribuição Remover Status das Amostras

Search WKT

#6472 - Agricultura-Semi-Perene

Latitude: -14.229961

Longitude: -59.197177

User Name: Abner dos Anjos

User E-mail: abiner.anjos@gmail.com

Status: remove

Prior Prob: 0.2727272727273

Post Prob: 0.3315859324342

Lat: -19.47781 | Lng: -45.75465 | 300 km

Seleção de Métodos / Class Noise Reduction (SOM) / Avaliação no TerraCollect - TerraClass Teste / Avaliação de Qualidade / Resultados

Formulário

Sample ID	Category	Date	Quality Status
4726	Florestal-Secundária	2019-08-13	2020-08-28
4727	Florestal-Secundária	2019-08-13	2020-08-28
4728	Florestal-Secundária	2019-08-13	2020-08-28
4729	Florestal-Secundária	2019-08-13	2020-08-28
4730	Florestal-Secundária	2019-08-13	2020-08-28

Sample Quality Status X Série Temporal Selecionad ... X

% Percent

Samples Quality Count Overview for Avaliação no TerraCollect - TerraClass Teste

CLEAN ANALYZE REMOVE

Florestal-Secundária 476 136 0

Agricultura-Temporária-Mais-de-1-ciclo 409 272 136

Agricultura-Temporária-De-1-ciclo 544 136 0

Silvicultura 136 0 0

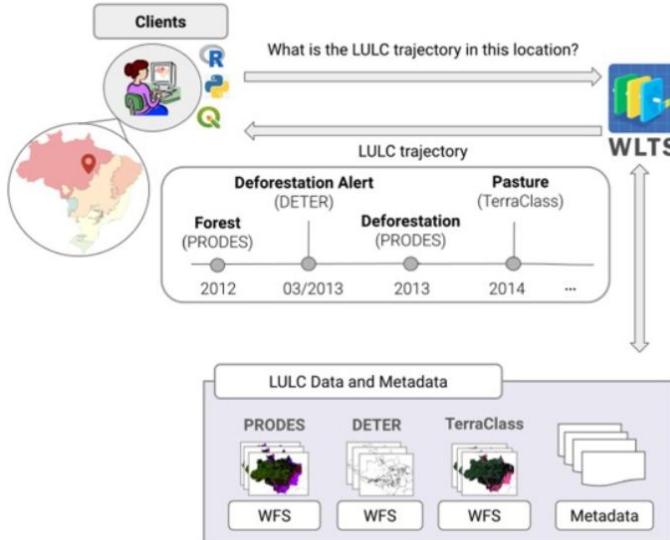
Agricultura-Semiperene 136 0 0

Corpos-d'água 0 0 0

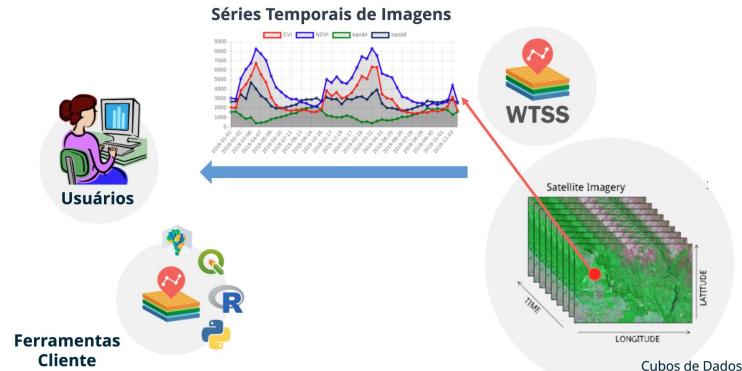
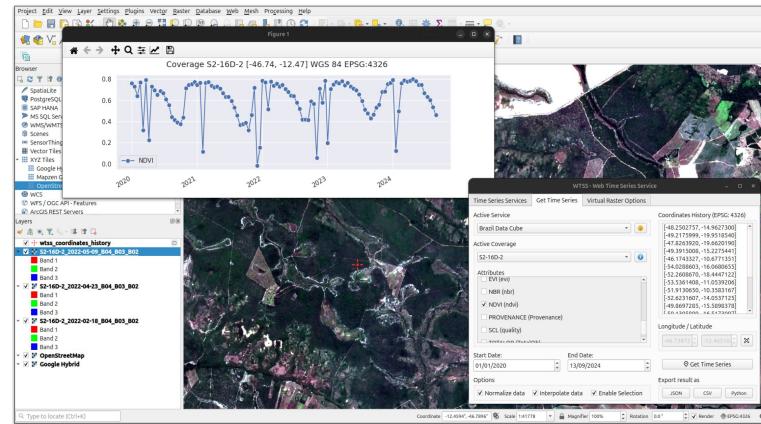
TerraCollect - v0.2.2, Copyright © 2021 INPE, Embrapa & IBGE

Serviços WLTS e WTSS

<https://data.inpe.br/bdc/wlts>



<https://data.inpe.br/bdc/wtss>



Serviços OGC

<https://data.inpe.br/bdc/geoserver/mosaics/ows?SERVICE=WMS&REQUEST=GetCapabilities>

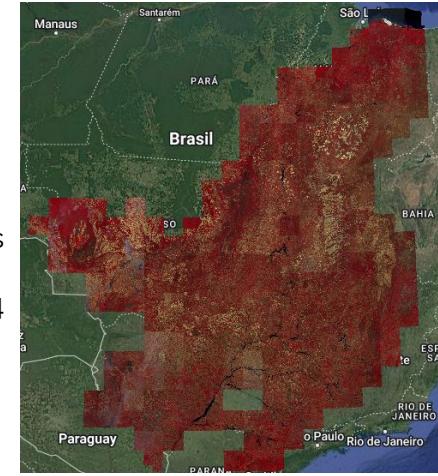
Mosaico Landsat Brasil (6 meses)



Mosaico Landsat
Estado de São Paulo - 6 meses
(Maio - Outubro)
(2013 - 2023)



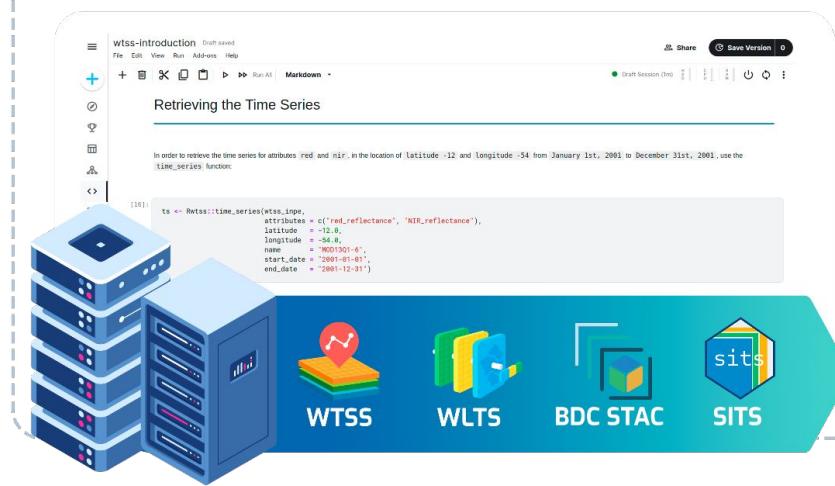
Mosaico Sentinel-2 Cerrado - 2 meses
Novembro/2023- Agosto/2024



<https://data.inpe.br/bdc/lab>



AMBIENTE DE CIÊNCIA DE DADOS GEOESPACIAIS - BRAZIL DATA CUBE



Catálogo de Metadados e Serviços OGC



<https://data.inpe.br/geonetwork>

<https://data.inpe.br/big/geoserver>

The screenshot shows the homepage of the BIG Catalogue. At the top, there's a large search bar with placeholder text "Search ...". Below it, a message says "Search 242 data sets, services and maps, ...". The main content area is divided into several sections:

- Browse by Topics:** A grid of categories with counts:
 - Imagery base maps earth cover (80)
 - Climatology, meteorology, atmo... (65)
 - Environment (59)
 - Geoscientific information (37)
 - Inland waters (35)
 - ... (9)
 - Location (5)
 - Society (4)
 - Biota (3)
 - Elevation (1)
 - Oceans (1)
- Browse resources:** A grid of service types with counts:
 - Dataset (231)
 - Service (11)
 - service-COG-GeoTIFF Raster ... (6)
 - service-OGC WFS (3)
 - (2)



BIG Tech Talks



WEBINAR

ACESSO, VISUALIZAÇÃO E PROCESSAMENTO DE IMAGENS SENTINEL-2 UTILIZANDO PYTHON



<https://github.com/brazil-data-cube/code-gallery>

brazil-data-cube / **code-gallery** Type to search

< Code Issues 3 Pull requests Actions Projects Wiki Security Insights Settings

code-gallery Public Edit Pins Unwatch 7

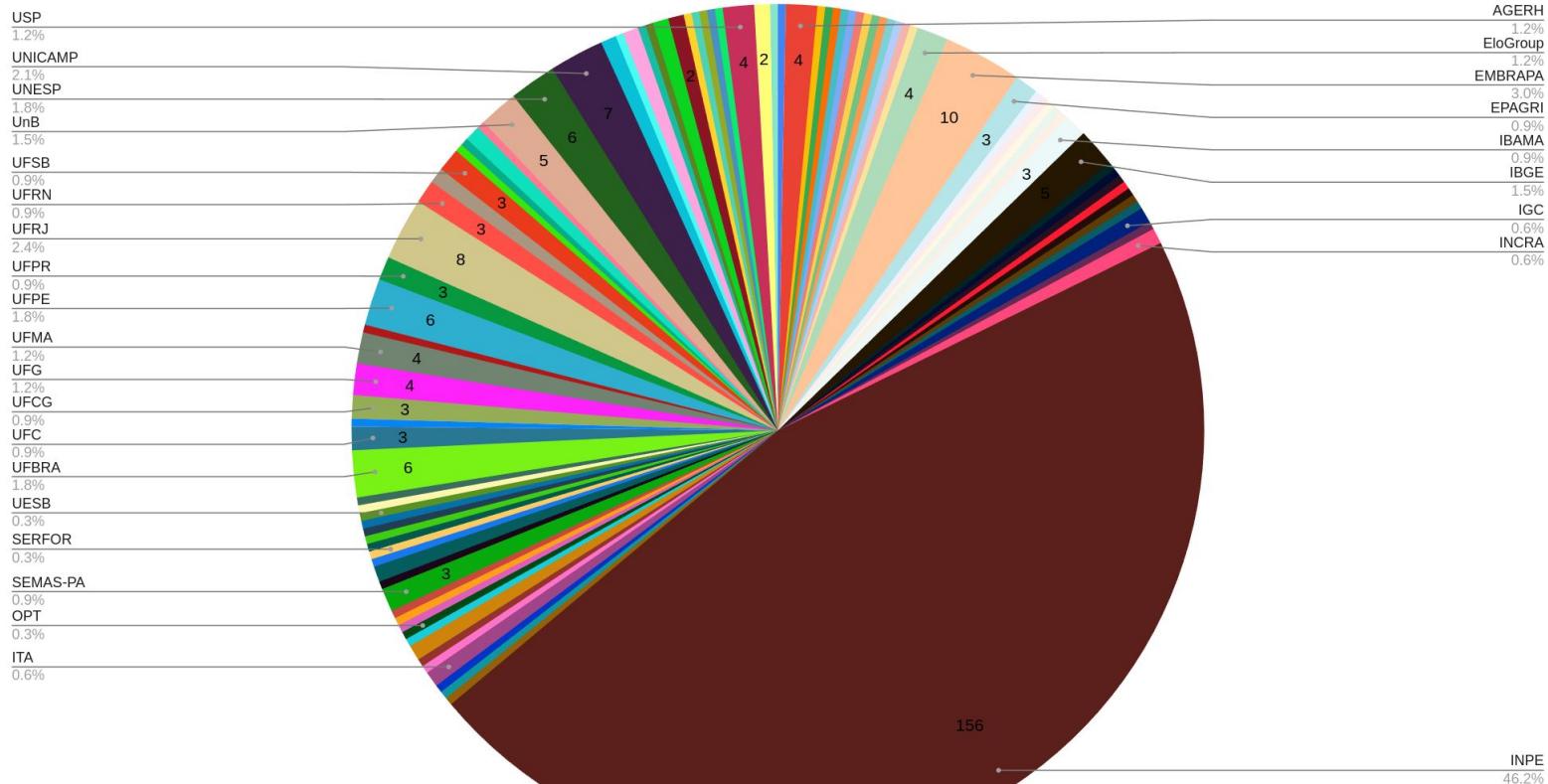
master 2 Branches 1 Tag Go to file Add file Code

gqueiroz Merge pull request #88 from uba/master bebc5a0 · yesterday 296 Commits

File	Description	Time Ago
img	updating db model	2 years ago
jupyter	Added missed cells	2 days ago
rmarkdown/R/bdc-article	update file names in Landsat-8/OLI and Sentinel-2/MSI cl...	4 years ago
scripts/R/bdc-article	Update 01_ExtractTimeSeries.R	4 years ago
.gitignore	Adding Jupyter Notebook for WTSS	5 years ago
LICENSE	Change LICENSE to GPLv3	2 years ago
README.md	WCPMS to README.md	3 months ago
table-of-contents.ipynb	update sample Python Notebook	3 years ago

README GPL-3.0 license

Participantes - BIG TechTalks 03



O Programa Copernicus



Cooperação entre a Comissão Européia e a Agência Espacial Europeia (ESA) para desenvolver serviços de observação da Terra por satélites;

Família de missões orbitais chamadas **Sentinel**, como radares e instrumentos multiespectrais com uma estratégia de longo prazo;

Para acessar os dados usa-se pontos centrais de distribuição, ou hubs, com diferentes estratégia de arquivamento.



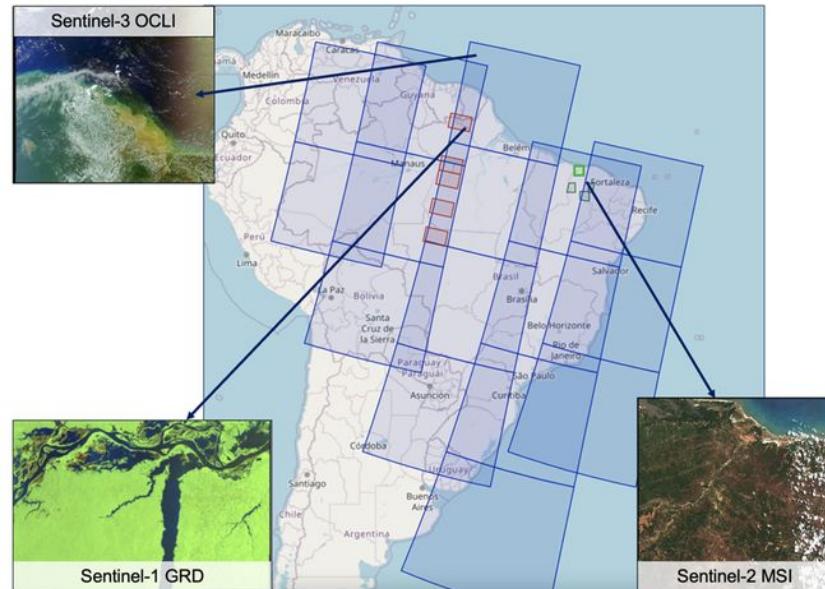
Repositório Espelho de Dados Sentinel no INPE



O Brasil, por meio do Ministério da Ciência, Tecnologia e Inovação (MCTI) e a União Europeia, representada pela Comissão Europeia assinaram em 08/03/2018 um **Acordo de Cooperação** (AC).

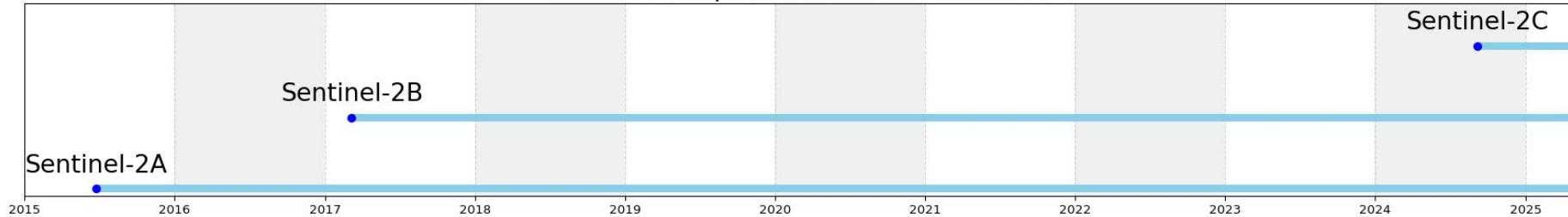
O INPE estabelece um **Repositório Espelho** de dados **Sentinel** para o Brasil. ESA fornece ao INPE o acesso mais ágil aos dados do Sentinel.

O Programa Base de Informações Georreferenciadas (**BIG**) do INPE iniciou, em 2022 o uso da Coordenação de Infraestrutura de Dados e Supercomputação (COIDS) para abrigar a estrutura máquinas necessárias para armazenar os dados espelhados, transferir, catalogar e para rodar as interfaces de software que permitem o acesso ao repositório.



Timeline Sentinel-2

Linha do Tempo dos Satélites Sentinel-2



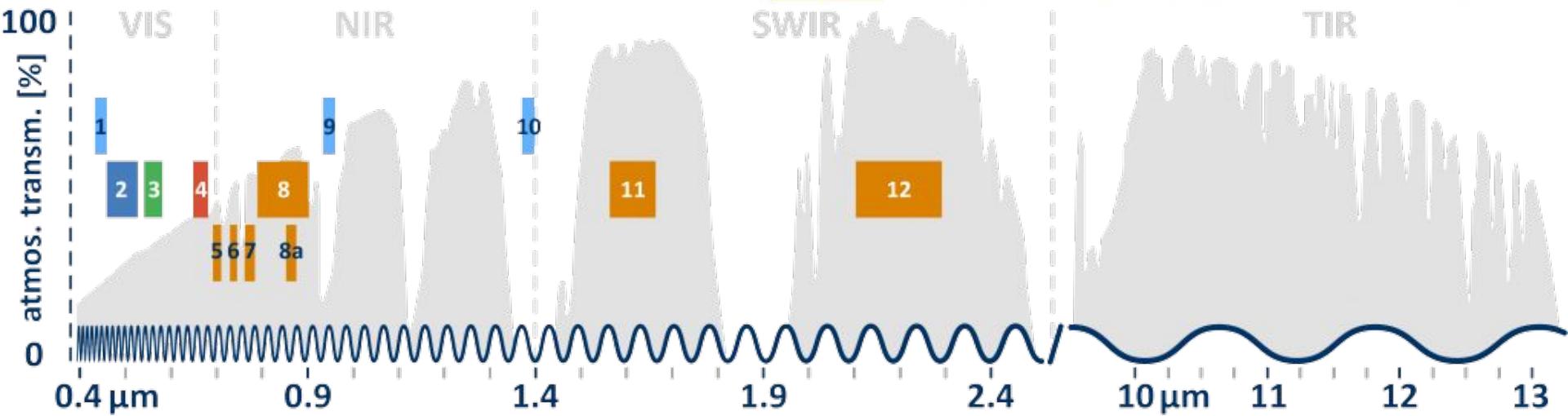
Sentinel-2A (2015 - 2026): 23 de Junho de 2015

Sentinel-2B (2017 - 2027): 7 de Março de 2017

Sentinel-2C (2024 - 2034): 5 de Setembro de 2024

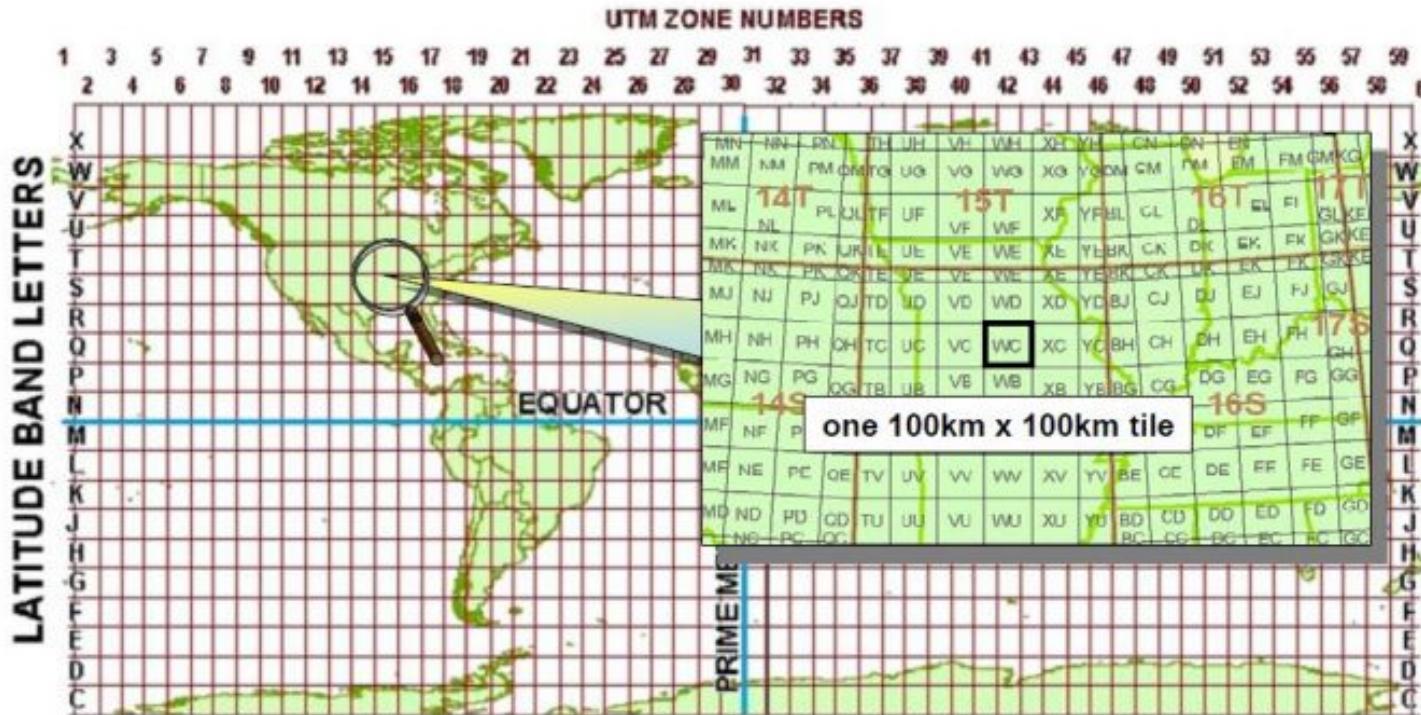
Sentinel-2D (2028 - 2038): 2028

Bandas Sentinel-2

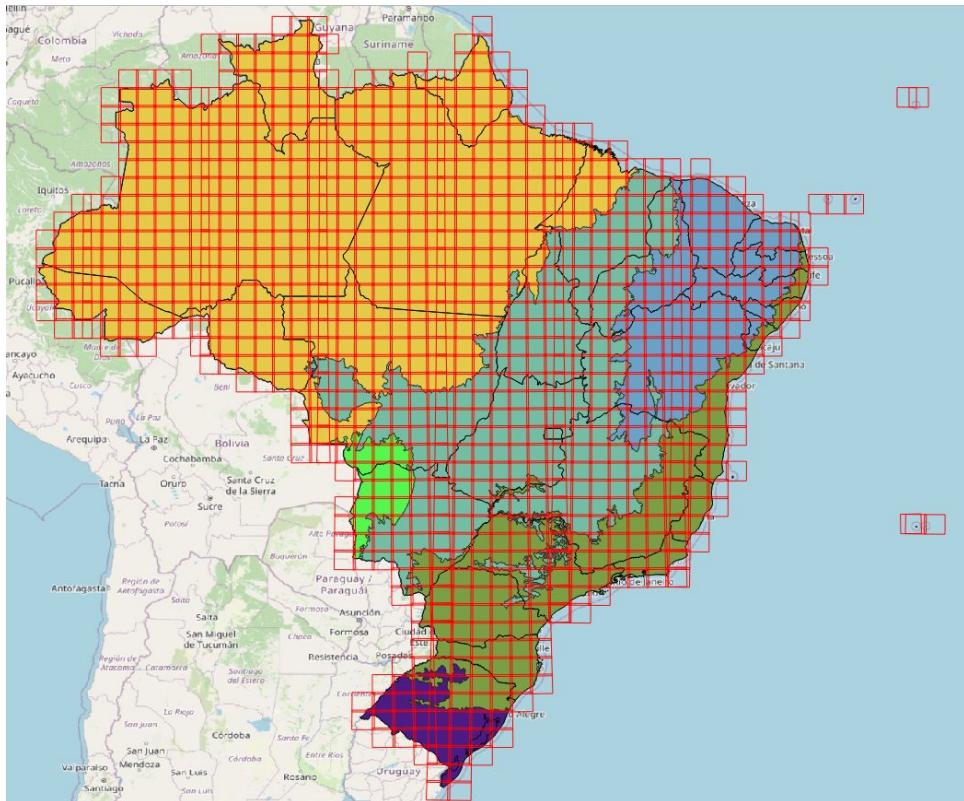


BAND	SPECTRAL	WAVELEN. [μm]	GEOM. [m]	SENSOR
1	aerosols	0.429 – 0.457	60	MSI
2	blue	0.451 – 0.539	10	MSI
3	green	0.538 – 0.585	10	MSI
4	red	0.641 – 0.689	10	MSI
5	red edge	0.695 – 0.715	20	MSI
6	red edge	0.731 – 0.749	20	MSI
7	red edge	0.769 – 0.797	20	MSI
8	NIR	0.784 – 0.900	10	MSI
8a	narrow NIR	0.855 – 0.875	20	MSI
9	water vapour	0.935 – 0.955	60	MSI
10	SWIR cirrus	1.365 – 1.385	60	MSI
11	SWIR	1.565 – 1.655	20	MSI
12	SWIR	2.100 – 2.280	20	MSI

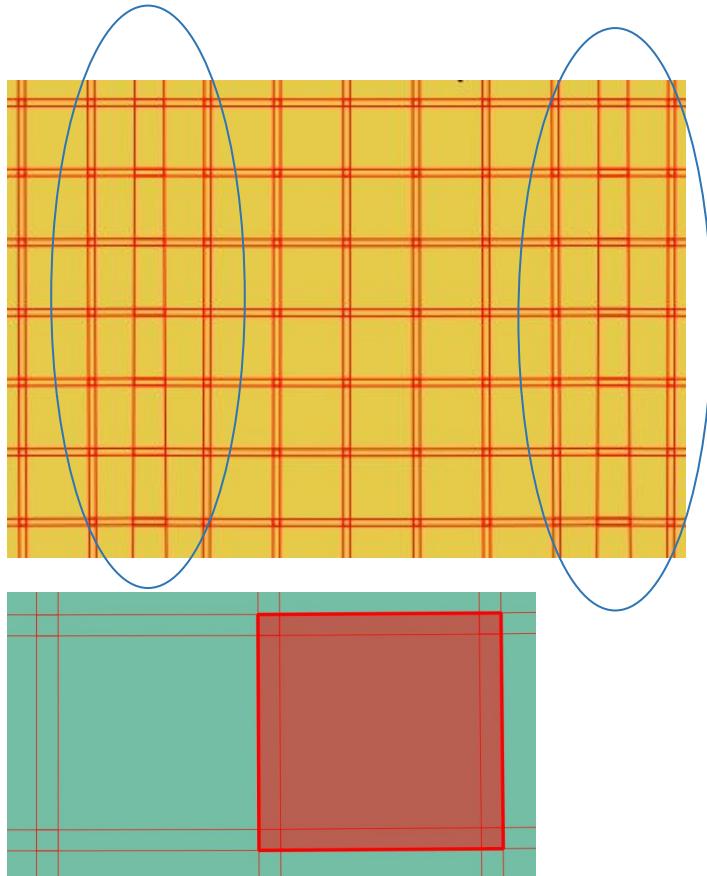
MGRS: Military Grid Reference System



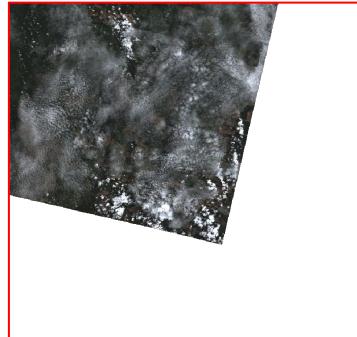
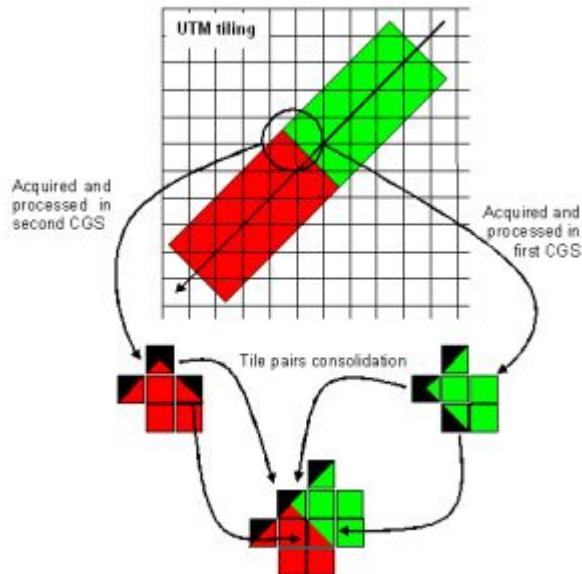
MGRS: Características



1045 tiles no Brasil

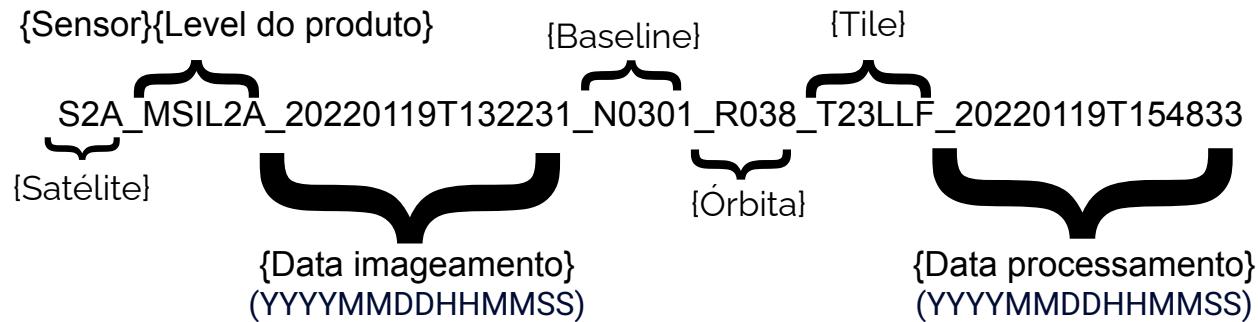


Cenas Sentinel-2: Características

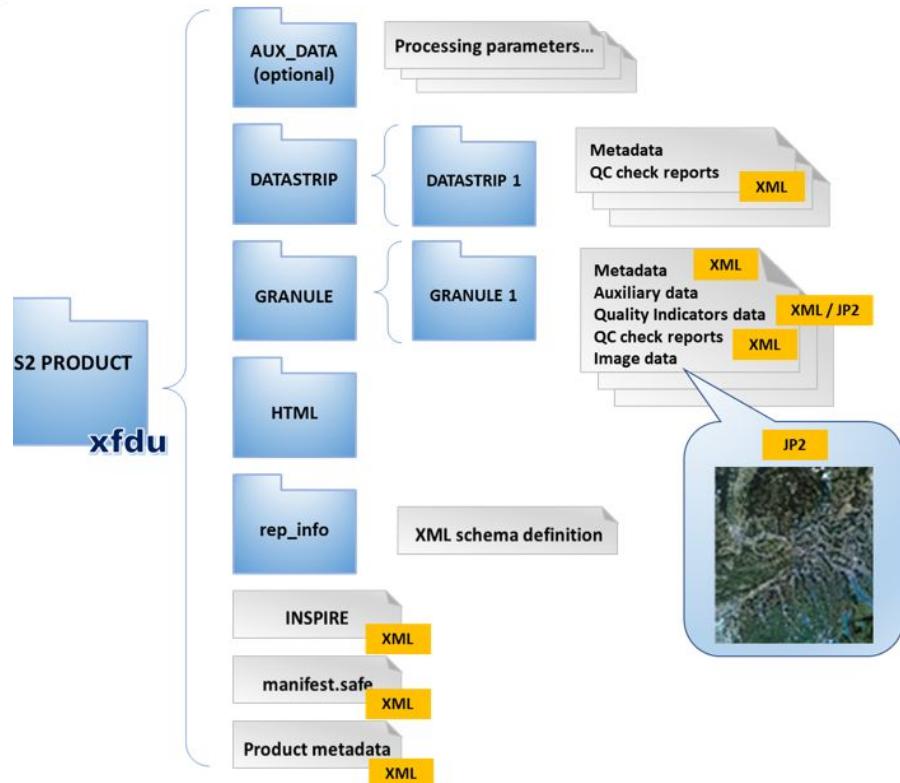
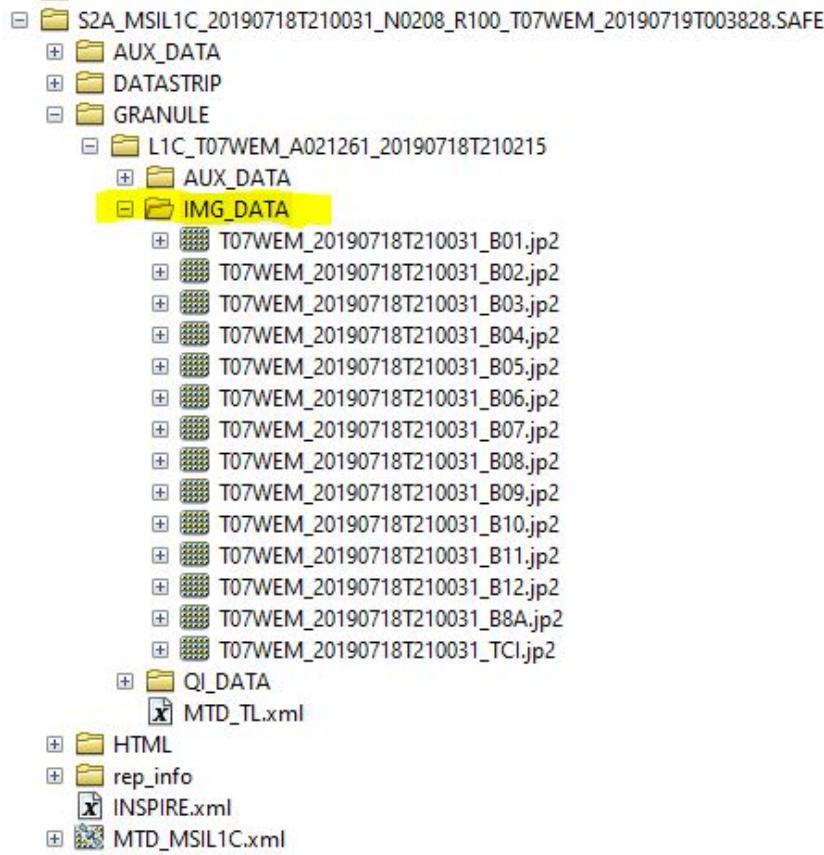


Nomenclatura de uma cena

S2A_MSIL1C_20150802T105414_N0102_R008_T30RWQ_20150803T124046.SAFE



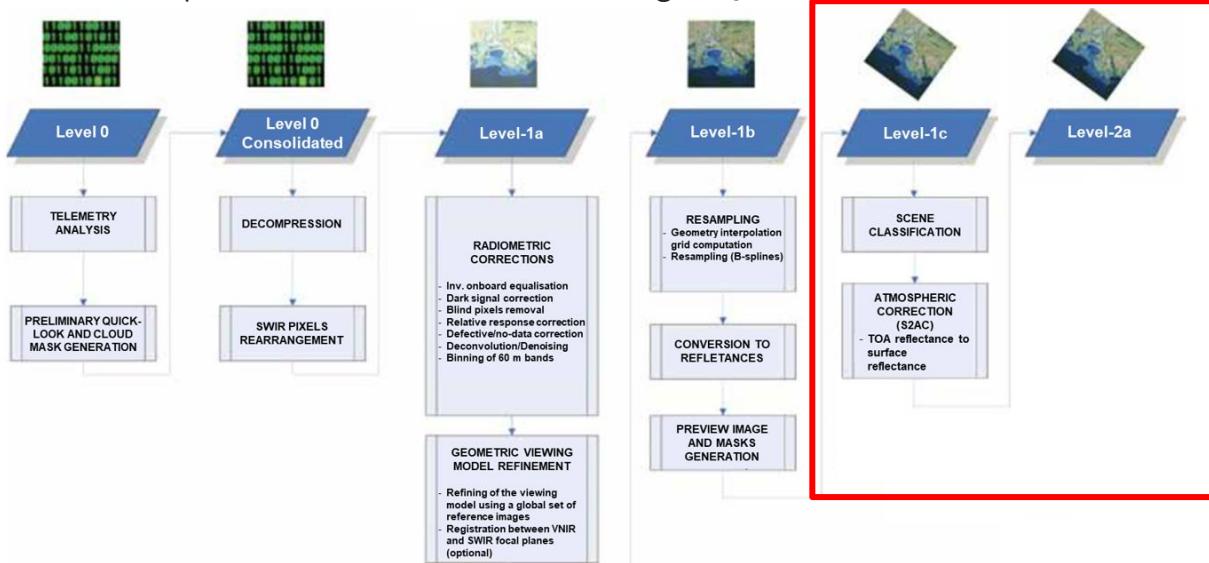
.SAFE (Standard Archive Format for Europe)



Níveis de Processamento

Internos:

- Level-0: dado sem processamento, coregistro rudimentar, máscara de nuvens inicial;
- Level-1A: correções radiométricas e geométricas;
- Level-1B: reamostragem, conversão para reflectância no sensor e geração da máscara de nuvens/água/superfície;



Disponibilizados:

- **Level-1C (L1C):** reflectância no topo da atmosfera (TOA). Granulos de 100x100 km.
- **Level-2A (L2A):** reflectância de superfície ou Bottom-of-atmosphere (BOA). Correções atmosféricas, de terreno e nuvens cirrus. Bandas adicionais *aerosol optical thickness*, *water vapour*, e *scene classification*.

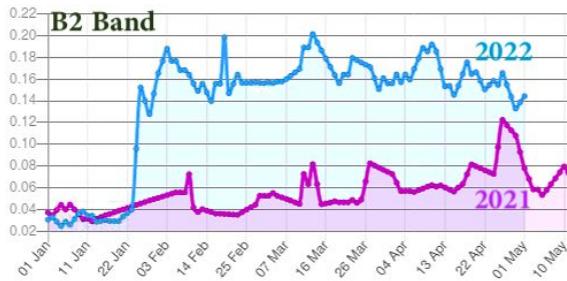
Mais detalhes: <https://senttiwiki.copernicus.eu/web/s2-processing>

Scene Classification Layer (SCL)

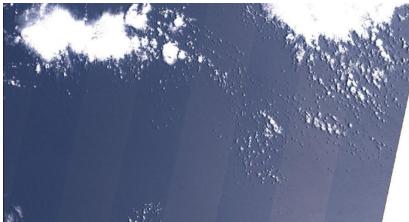
Label	Classification
0	No_Data
1	SATURATED_OR_DEFECTIVE
2	CAST_SHADOWS
3	CLOUD_SHADOWS
4	VEGETATION
5	NOT_VEGETATED
6	WATER
7	UNCLASSIFIED
8	CLOUD_MEDIUM_PROBABILITY
9	CLOUD_HIGH_PROBABILITY
10	THIN_CIRRUS
11	SNOW or ICE

Detalhes

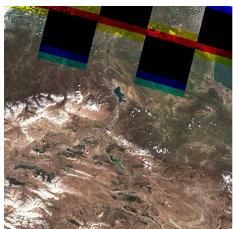
- 25/01/2022 (Baseline 04.00): BOA_ADD_OFFSET = -1000
- Reprocessamento do acervo histórico de 2015-2021 (Baseline 05.00): para uniformizar baseline e melhorar calibração
- Correção atmosférica feita por tile, áreas de sobreposição com valor ligeiramente diferente, devido a Dark Dense Vegetation (DDV) algorithm e nuvens. 1-2% em floresta tropical. Precisa de + estudos.



- Efeitos de ângulos de visada



- SCL pode conter falhas



- Falhas ocasionais



Sen2cor



Sen2Cor is a processor for Sentinel-2 Level 2A product generation and formatting; it performs the atmospheric-, terrain- and cirrus correction of Top-Of-Atmosphere Level 1C input data. Sen2Cor creates Bottom-Of-Atmosphere, optionally terrain- and cirrus corrected reflectance images; and additionally, Aerosol Optical Thickness-, Water Vapor-, Scene Classification Map and Quality Indicators for cloud and snow probabilities. Its output product format is equivalent to the Level 1C User Product: JPEG 2000 images, with three different resolutions, 60, 20 and 10 m.

Sen2Cor installation packages are provided as standalone installers.

[Sen2Cor v2.12](#) is the latest release of Sen2Cor supporting Sentinel-2 L1C data generated with the current (15.0) Products Specification Document, as input, which was deployed on 23 July 2024. Please refer to the following [news](#) published on 18 July 2024.

sen2cor-docker Public

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marujore Merge pull request #14 from marujore/master · 837ae74 · 2 months ago · 49 Commits

2.10.0	standardize image name using hifen	3 years ago
2.11.0	It's Sen2cor 2.11!	2 years ago
2.12.0	✨ It's Sen2cor 2.12!	7 months ago
2.5.5	Standardize image name within dirs	2 years ago
2.8.0	standardize image name using hifen	3 years ago
2.9.0	standardize image name using hifen	3 years ago

Como acessar os dados Sentinel-2

INPE STAC Server [Browse](#)

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Description
This is the landing page for the INPE STAC server. The SpatioTemporal Asset Catalog (STAC) provide a standardized way to expose collections of spatial temporal data. Here you will find collections of data provided by projects and areas of INPE.

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AMAZONIA-1/WFI - Level-4-SR - Cloud Optimized GeotIFF This collection contains images from the WFI sensor onboard the satellite CBERS-4A and AMAZONIA-1 over Brazil. The data is processed... 1/1/2024, 12:00:00 AM UTC - 11/19/2024, 12:00:00 AM UTC	CHARTER - WFI The collection contains images from the WFI sensor onboard the satellite CHARTER-4, CBERS-4A and AMAZONIA-1 over Brazil. The data is processed... 4/20/2024, 12:00:00 AM UTC - 9/20/2024, 12:00:00 AM UTC	LCC - Bahia - LC8 30m 1M STK This land cover classification refers to a study area in Bahia state, in the Cerrado biome. For this map, the Landsat-8 monthly data cube was used, with a... 9/1/2018, 12:00:00 AM UTC - 8/31/2019, 12:00:00 AM UTC	Sentinel-1 - Level-1 - Interferometric Wide Swath Ground Range Detected High Resolution Copernicus Sentinel-1 Level-1 Ground Range Detected (GRD) products consist of focused SAR data that has been detected, multi-looked and projected to... 5/1/2021, 9:45:44 AM UTC - 11/27/2024, 11:20:29 PM UTC
CBERS-4/MUX - Level-4-SR - Cloud Optimized GeotIFF CBERS-4 Surface Reference product over Brazil. Li-SR product provides orthorectified surface reflectance images. This dataset is provided ... 1/1/2018, 12:00:00 AM UTC - 11/19/2024, 12:00:00 AM UTC	CHARTER - WFM This collection contains images from the CBERS-4A/WFM over Brazil. The data is processed by the Disasters Charter and provided as Cloud Optimized... 1/27/2023, 12:00:00 AM UTC - 9/1/2024, 12:00:00 AM UTC	LCC - Bahia - S2 10m 1M STK This land cover classification refers to a study area in Bahia state, in the Cerrado biome. For this map, the Sentinel-2 monthly data cube was used, with a... 9/1/2018, 12:00:00 AM UTC - 8/31/2019, 12:00:00 AM UTC	Sentinel-2 - Level-1C Copernicus Sentinel-2 MSI Level-1C product over Brazil. Level-1C product provides orthorectified Top-Of-Atmosphere (TOA) reflectance images. 11/18/2017, 2:47:29 PM UTC - 11/07/2024, 3:07:21 PM UTC
GOES-13/Imager - Level-3 - VIS/IR Imagery (Binary) GOES-13 is a satellite of the Geostationary Operational Environmental Satellite (GOES) series operated by the National Oceanic and Atmospheric Administration (NOAA). 1/1/2018, 12:00:00 AM UTC - 11/19/2024, 12:00:00 AM UTC	LCC - Caatinga - LC8 30m 1G0 STK This is a land cover classification map of Brazilian Caatinga, from January to December of 2017. This classification was made on top of Landsat-8 18... Sentinel-2 - Level-2A Copernicus Sentinel-2 MSI Level-2A product over Brazil. This product provides orthorectified surface reflectance images. 1/1/2018, 12:00:00 AM UTC - 11/19/2024, 12:00:00 AM UTC	GOES-13/Imager - Level-3 - VIS/IR Imagery (Binary) GOES-13 is a satellite of the Geostationary Operational Environmental Satellite (GOES) series operated by the National Oceanic and Atmospheric Administration (NOAA). 1/1/2018, 12:00:00 AM UTC - 11/19/2024, 12:00:00 AM UTC	GOES-13/Imager - Level-3 - VIS/IR Imagery (Binary) GOES-13 is a satellite of the Geostationary Operational Environmental Satellite (GOES) series operated by the National Oceanic and Atmospheric Administration (NOAA). 1/1/2018, 12:00:00 AM UTC - 11/19/2024, 12:00:00 AM UTC

STAC Browser

<https://data.inpe.br/stac/browser>

INPE STAC

<https://data.inpe.br/bdc/stac/v1/>

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- 11 Mosaics

Region

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West, South, East, North [SEARCH](#)

Select the Period

Start Date [Last Date](#)

Max. cloud coverage

100% [SEARCH](#)

Brazil Data Cube

Lat: 0.35156 | Lng: -41.25468 | 310 km

Data Cube Explorer - v3.2.1, Copyright (c) 2019-2023 INPE

BDC Explorer

<https://data.inpe.br/bdc/explorer>



Coleções Sentinel disponíveis



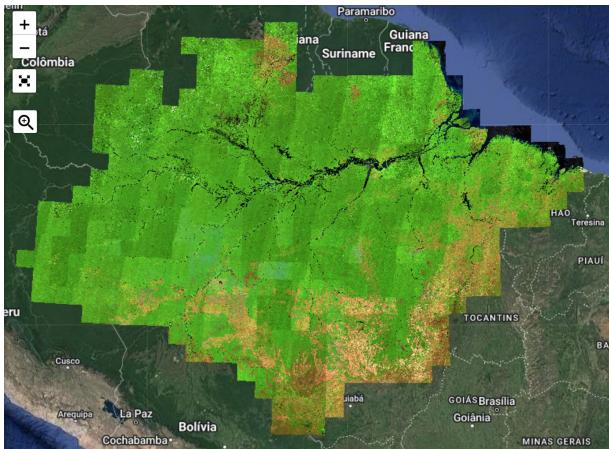
Sentinel-1 - Level-1 - GRD



Sentinel-2 - Level-1C - Bundle



Sentinel-2 - Level-2A - Bundle



Sentinel-2 - Level-2A - COG

Sentinel-2/MSI - Level-2A -
Data Cube - LCF 16 days
(10 metros)

Sentinel-3/OLCI - Level-1B Full
Resolution

3 meses
[Junho-Ago. - 2022]
RGB: B11, B8A, B04
Resolução: 10m

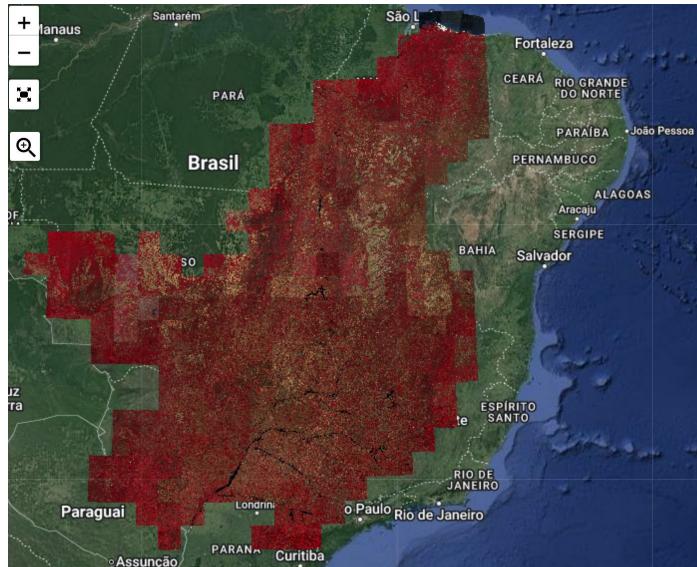
Sentinel-2 - MSI - Amazonia
(10 metros)

Mais exemplos de Mosaicos Sentinel-2

**Sentinel-2 - MSI - Cerrado
(10 metros)**

4 meses

[Junho-Set. - 2022]

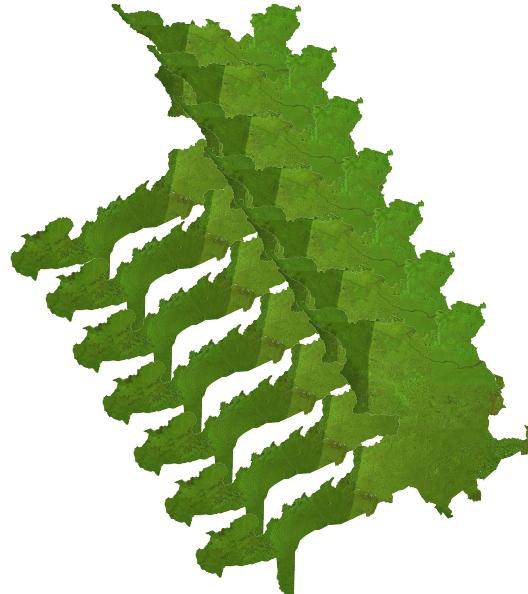


RGB: B08, B04, B03
Resolução: 10m

**Sentinel-2 - MSI - Yanomami Reserve
(10 metros)**

6 meses

[Abril (2019) - Abril (2022)]
(7 mosaicos de 6 meses)



RGB: B11, B08, B04
Resolução: 10m

Sentinel-2

**Sentinel-2 - Level-1C - Bundle
(10, 20, 60 metros)**

L1C: ToA - Top of Atmosphere

Timeline: 2022* - presente

Formato: .zip (.SAFE)

Grid: MGRS



**Sentinel-2 - Level-2A - Bundle
(10, 20, 60 metros)**

L2A: Surface Reflectance

Timeline: 2022* - presente

Formato: .zip (.SAFE) (JP2)

Grid: MGRS



**Sentinel-2 - Level-2A - COG
(10, 20, 60 metros)**

L2A: Surface Reflectance

Timeline: 2022* - presente

Formato: .tif (COG)

Grid: MGRS



**Sentinel-2/MSI - Level-2A -
Data Cube - LCF 16 days
(10 metros)**

SR: Surface Reflectance

Timeline: 2017 - presente

Formato: .tif (COG)

Grid: BDC_SM

*2015-2021: em integração

Prática

<https://github.com/brazil-data-cube/code-gallery>

brazil-data-cube / **code-gallery**

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 **code-gallery** Public

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master 2 Branches 1 Tag Go to file Add file Code

marujore Merge pull request #93 from marujore/master ... b6703f4 · 19 hours ago 310 Commits

img	⚡ updating db model	2 years ago
jupyter	✨ It's Big Tech Talk 03	19 hours ago
rmarkdown/R/bdc-article	update file names in Landsat-8/OLI and Sentinel-2/MSI clas...	4 years ago
scripts/R/bdc-article	Update 01_ExtractTimeSeries.R	4 years ago
.gitignore	Adding Jupyter Notebook for WTSS	5 years ago
LICENSE	🔥 Change LICENSE to GPLv3	2 years ago
README.md	WCPMS to README.md	4 months ago
table-of-contents.ipynb	update sample Python Notebook	3 years ago

About

A gallery of interesting Jupyter Notebooks based on Brazil Data Cube data and technologies

python r geospatial gis
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earth-observation

Readme GPL-3.0 license Activity Custom properties
66 stars 8 watching 29 forks



Obrigado!
Contato: data.support@inpe.br

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Rennan Marujo <rennan.marujo@inpe.br>



MINISTÉRIO DA
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Sentinel-1 e Sentinel-3

Sentinel-1 - Level-1 - GRD

Interferometric Wide Swath Ground Range Detected High Resolution

Timeline: 01/05/2021 - 2025*

Formato: .zip

Dados Catalogo INPE: Coleção Sentinel-3

Sentinel-3/OLCI - Level-1B Full Resolution

Ocean and Land Colour Instrument

Timeline: 04/03/2023 - 2025*

Formato: .zip