

GEONETCast-Americas Training for the Eastern Caribbean States

Day 6 - May 15th

Session 3:

Introduction to SHOWCast



Diego Souza
diego.souza@inpe.br

DISSM - Meteorological Satellites and Sensors' Division
CGCT - General Coordination of Earth Sciences
INPE - National Institute for Space Research

SDCR
PROJECT
Strengthening Disaster and Climate Resilience
in the Eastern and Southern Caribbean

USAID
FROM THE AMERICAN PEOPLE
U.S. Agency for International Development
Caribbean Institute for Meteorology and Hydrology



Presentation Outline

- Challenges and Goals
- Demonstration
- SHOWCast Overview



The screenshot shows the SHOWCast interface, which is a web-based operational monitor for GEONETCast-Americas. It features a sidebar with links to various datasets and services, and a main area displaying a grid of multispectral RGB composites from the GOES-16 satellite.

SATELLITES

- GEO-16 - 16 Bands
- GEO-16 - 16 RGB Composites
- GEO-16 Data Products
- GEO-16 - Clouds & Cloud Cover
- GEO-16 - GCM
- GEO-16 - GOES-17 Mosaic
- GEO-16 - GEO-16 & Composites
- METARs & TAFs
- POLAR SATELLITES**
- OCOM-W1 AMIRG
- NASA CALIPSO
- Micro Rain Rate
- Standard TPW Products
- Wind Products
- Cloud Products
- Cloud Sat
- Flood Mapping Products
- SST - SST Anomaly and SST Trend
- Chlorophyll-a Concentration
- Sea Ice Products
- Veg Cover
- Fire - Hot Spots

MWP / FORECAST

- GIF (0.5°)
- Forecast Charts

NWS IMC

- Tropical Weather Disc (N. Atlantic)
- Tropical Weather Disc (E. Pacific)
- Volcanic Ash

NOAA

- GOES-16
- GOES-17
- GOES-18
- GOES-19
- GOES-20
- GOES-21
- GOES-22
- GOES-23
- GOES-24
- GOES-25
- GOES-26
- GOES-27
- GOES-28
- GOES-29
- GOES-30
- GOES-31
- GOES-32
- GOES-33
- GOES-34
- GOES-35
- GOES-36
- GOES-37
- GOES-38
- GOES-39
- GOES-40
- GOES-41
- GOES-42
- GOES-43
- GOES-44
- GOES-45
- GOES-46
- GOES-47
- GOES-48
- GOES-49
- GOES-50
- GOES-51
- GOES-52
- GOES-53
- GOES-54
- GOES-55
- GOES-56
- GOES-57
- GOES-58
- GOES-59
- GOES-60
- GOES-61
- GOES-62
- GOES-63
- GOES-64
- GOES-65
- GOES-66
- GOES-67
- GOES-68
- GOES-69
- GOES-70
- GOES-71
- GOES-72
- GOES-73
- GOES-74
- GOES-75
- GOES-76
- GOES-77
- GOES-78
- GOES-79
- GOES-80
- GOES-81
- GOES-82
- GOES-83
- GOES-84
- GOES-85
- GOES-86
- GOES-87
- GOES-88
- GOES-89
- GOES-90
- GOES-91
- GOES-92
- GOES-93
- GOES-94
- GOES-95
- GOES-96
- GOES-97
- GOES-98
- GOES-99
- GOES-100
- GOES-101
- GOES-102
- GOES-103
- GOES-104
- GOES-105
- GOES-106
- GOES-107
- GOES-108
- GOES-109
- GOES-110
- GOES-111
- GOES-112
- GOES-113
- GOES-114
- GOES-115
- GOES-116
- GOES-117
- GOES-118
- GOES-119
- GOES-120
- GOES-121
- GOES-122
- GOES-123
- GOES-124
- GOES-125
- GOES-126
- GOES-127
- GOES-128
- GOES-129
- GOES-130
- GOES-131
- GOES-132
- GOES-133
- GOES-134
- GOES-135
- GOES-136
- GOES-137
- GOES-138
- GOES-139
- GOES-140
- GOES-141
- GOES-142
- GOES-143
- GOES-144
- GOES-145
- GOES-146
- GOES-147
- GOES-148
- GOES-149
- GOES-150
- GOES-151
- GOES-152
- GOES-153
- GOES-154
- GOES-155
- GOES-156
- GOES-157
- GOES-158
- GOES-159
- GOES-160
- GOES-161
- GOES-162
- GOES-163
- GOES-164
- GOES-165
- GOES-166
- GOES-167
- GOES-168
- GOES-169
- GOES-170
- GOES-171
- GOES-172
- GOES-173
- GOES-174
- GOES-175
- GOES-176
- GOES-177
- GOES-178
- GOES-179
- GOES-180
- GOES-181
- GOES-182
- GOES-183
- GOES-184
- GOES-185
- GOES-186
- GOES-187
- GOES-188
- GOES-189
- GOES-190
- GOES-191
- GOES-192
- GOES-193
- GOES-194
- GOES-195
- GOES-196
- GOES-197
- GOES-198
- GOES-199
- GOES-200
- GOES-201
- GOES-202
- GOES-203
- GOES-204
- GOES-205
- GOES-206
- GOES-207
- GOES-208
- GOES-209
- GOES-210
- GOES-211
- GOES-212
- GOES-213
- GOES-214
- GOES-215
- GOES-216
- GOES-217
- GOES-218
- GOES-219
- GOES-220
- GOES-221
- GOES-222
- GOES-223
- GOES-224
- GOES-225
- GOES-226
- GOES-227
- GOES-228
- GOES-229
- GOES-230
- GOES-231
- GOES-232
- GOES-233
- GOES-234
- GOES-235
- GOES-236
- GOES-237
- GOES-238
- GOES-239
- GOES-240
- GOES-241
- GOES-242
- GOES-243
- GOES-244
- GOES-245
- GOES-246
- GOES-247
- GOES-248
- GOES-249
- GOES-250
- GOES-251
- GOES-252
- GOES-253
- GOES-254
- GOES-255
- GOES-256
- GOES-257
- GOES-258
- GOES-259
- GOES-260
- GOES-261
- GOES-262
- GOES-263
- GOES-264
- GOES-265
- GOES-266
- GOES-267
- GOES-268
- GOES-269
- GOES-270
- GOES-271
- GOES-272
- GOES-273
- GOES-274
- GOES-275
- GOES-276
- GOES-277
- GOES-278
- GOES-279
- GOES-280
- GOES-281
- GOES-282
- GOES-283
- GOES-284
- GOES-285
- GOES-286
- GOES-287
- GOES-288
- GOES-289
- GOES-290
- GOES-291
- GOES-292
- GOES-293
- GOES-294
- GOES-295
- GOES-296
- GOES-297
- GOES-298
- GOES-299
- GOES-300
- GOES-301
- GOES-302
- GOES-303
- GOES-304
- GOES-305
- GOES-306
- GOES-307
- GOES-308
- GOES-309
- GOES-310
- GOES-311
- GOES-312
- GOES-313
- GOES-314
- GOES-315
- GOES-316
- GOES-317
- GOES-318
- GOES-319
- GOES-320
- GOES-321
- GOES-322
- GOES-323
- GOES-324
- GOES-325
- GOES-326
- GOES-327
- GOES-328
- GOES-329
- GOES-330
- GOES-331
- GOES-332
- GOES-333
- GOES-334
- GOES-335
- GOES-336
- GOES-337
- GOES-338
- GOES-339
- GOES-340
- GOES-341
- GOES-342
- GOES-343
- GOES-344
- GOES-345
- GOES-346
- GOES-347
- GOES-348
- GOES-349
- GOES-350
- GOES-351
- GOES-352
- GOES-353
- GOES-354
- GOES-355
- GOES-356
- GOES-357
- GOES-358
- GOES-359
- GOES-360
- GOES-361
- GOES-362
- GOES-363
- GOES-364
- GOES-365
- GOES-366
- GOES-367
- GOES-368
- GOES-369
- GOES-370
- GOES-371
- GOES-372
- GOES-373
- GOES-374
- GOES-375
- GOES-376
- GOES-377
- GOES-378
- GOES-379
- GOES-380
- GOES-381
- GOES-382
- GOES-383
- GOES-384
- GOES-385
- GOES-386
- GOES-387
- GOES-388
- GOES-389
- GOES-390
- GOES-391
- GOES-392
- GOES-393
- GOES-394
- GOES-395
- GOES-396
- GOES-397
- GOES-398
- GOES-399
- GOES-400
- GOES-401
- GOES-402
- GOES-403
- GOES-404
- GOES-405
- GOES-406
- GOES-407
- GOES-408
- GOES-409
- GOES-410
- GOES-411
- GOES-412
- GOES-413
- GOES-414
- GOES-415
- GOES-416
- GOES-417
- GOES-418
- GOES-419
- GOES-420
- GOES-421
- GOES-422
- GOES-423
- GOES-424
- GOES-425
- GOES-426
- GOES-427
- GOES-428
- GOES-429
- GOES-430
- GOES-431
- GOES-432
- GOES-433
- GOES-434
- GOES-435
- GOES-436
- GOES-437
- GOES-438
- GOES-439
- GOES-440
- GOES-441
- GOES-442
- GOES-443
- GOES-444
- GOES-445
- GOES-446
- GOES-447
- GOES-448
- GOES-449
- GOES-450
- GOES-451
- GOES-452
- GOES-453
- GOES-454
- GOES-455
- GOES-456
- GOES-457
- GOES-458
- GOES-459
- GOES-460
- GOES-461
- GOES-462
- GOES-463
- GOES-464
- GOES-465
- GOES-466
- GOES-467
- GOES-468
- GOES-469
- GOES-470
- GOES-471
- GOES-472
- GOES-473
- GOES-474
- GOES-475
- GOES-476
- GOES-477
- GOES-478
- GOES-479
- GOES-480
- GOES-481
- GOES-482
- GOES-483
- GOES-484
- GOES-485
- GOES-486
- GOES-487
- GOES-488
- GOES-489
- GOES-490
- GOES-491
- GOES-492
- GOES-493
- GOES-494
- GOES-495
- GOES-496
- GOES-497
- GOES-498
- GOES-499
- GOES-500
- GOES-501
- GOES-502
- GOES-503
- GOES-504
- GOES-505
- GOES-506
- GOES-507
- GOES-508
- GOES-509
- GOES-510
- GOES-511
- GOES-512
- GOES-513
- GOES-514
- GOES-515
- GOES-516
- GOES-517
- GOES-518
- GOES-519
- GOES-520
- GOES-521
- GOES-522
- GOES-523
- GOES-524
- GOES-525
- GOES-526
- GOES-527
- GOES-528
- GOES-529
- GOES-530
- GOES-531
- GOES-532
- GOES-533
- GOES-534
- GOES-535
- GOES-536
- GOES-537
- GOES-538
- GOES-539
- GOES-540
- GOES-541
- GOES-542
- GOES-543
- GOES-544
- GOES-545
- GOES-546
- GOES-547
- GOES-548
- GOES-549
- GOES-550
- GOES-551
- GOES-552
- GOES-553
- GOES-554
- GOES-555
- GOES-556
- GOES-557
- GOES-558
- GOES-559
- GOES-560
- GOES-561
- GOES-562
- GOES-563
- GOES-564
- GOES-565
- GOES-566
- GOES-567
- GOES-568
- GOES-569
- GOES-570
- GOES-571
- GOES-572
- GOES-573
- GOES-574
- GOES-575
- GOES-576
- GOES-577
- GOES-578
- GOES-579
- GOES-580
- GOES-581
- GOES-582
- GOES-583
- GOES-584
- GOES-585
- GOES-586
- GOES-587
- GOES-588
- GOES-589
- GOES-590
- GOES-591
- GOES-592
- GOES-593
- GOES-594
- GOES-595
- GOES-596
- GOES-597
- GOES-598
- GOES-599
- GOES-600
- GOES-601
- GOES-602
- GOES-603
- GOES-604
- GOES-605
- GOES-606
- GOES-607
- GOES-608
- GOES-609
- GOES-610
- GOES-611
- GOES-612
- GOES-613
- GOES-614
- GOES-615
- GOES-616
- GOES-617
- GOES-618
- GOES-619
- GOES-620
- GOES-621
- GOES-622
- GOES-623
- GOES-624
- GOES-625
- GOES-626
- GOES-627
- GOES-628
- GOES-629
- GOES-630
- GOES-631
- GOES-632
- GOES-633
- GOES-634
- GOES-635
- GOES-636
- GOES-637
- GOES-638
- GOES-639
- GOES-640
- GOES-641
- GOES-642
- GOES-643
- GOES-644
- GOES-645
- GOES-646
- GOES-647
- GOES-648
- GOES-649
- GOES-650
- GOES-651
- GOES-652
- GOES-653
- GOES-654
- GOES-655
- GOES-656
- GOES-657
- GOES-658
- GOES-659
- GOES-660
- GOES-661
- GOES-662
- GOES-663
- GOES-664
- GOES-665
- GOES-666
- GOES-667
- GOES-668
- GOES-669
- GOES-670
- GOES-671
- GOES-672
- GOES-673
- GOES-674
- GOES-675
- GOES-676
- GOES-677
- GOES-678
- GOES-679
- GOES-680
- GOES-681
- GOES-682
- GOES-683
- GOES-684
- GOES-685
- GOES-686
- GOES-687
- GOES-688
- GOES-689
- GOES-690
- GOES-691
- GOES-692
- GOES-693
- GOES-694
- GOES-695
- GOES-696
- GOES-697
- GOES-698
- GOES-699
- GOES-700
- GOES-701
- GOES-702
- GOES-703
- GOES-704
- GOES-705
- GOES-706
- GOES-707
- GOES-708
- GOES-709
- GOES-710
- GOES-711
- GOES-712
- GOES-713
- GOES-714
- GOES-715
- GOES-716
- GOES-717
- GOES-718
- GOES-719
- GOES-720
- GOES-721
- GOES-722
- GOES-723
- GOES-724
- GOES-725
- GOES-726
- GOES-727
- GOES-728
- GOES-729
- GOES-730
- GOES-731
- GOES-732
- GOES-733
- GOES-734
- GOES-735
- GOES-736
- GOES-737
- GOES-738
- GOES-739
- GOES-740
- GOES-741
- GOES-742
- GOES-743
- GOES-744
- GOES-745
- GOES-746
- GOES-747
- GOES-748
- GOES-749
- GOES-750
- GOES-751
- GOES-752
- GOES-753
- GOES-754
- GOES-755
- GOES-756
- GOES-757
- GOES-758
- GOES-759
- GOES-760
- GOES-761
- GOES-762
- GOES-763
- GOES-764
- GOES-765
- GOES-766
- GOES-767
- GOES-768
- GOES-769
- GOES-770
- GOES-771
- GOES-772
- GOES-773
- GOES-774
- GOES-775
- GOES-776
- GOES-777
- GOES-778
- GOES-779
- GOES-780
- GOES-781
- GOES-782
- GOES-783
- GOES-784
- GOES-785
- GOES-786
- GOES-787
- GOES-788
- GOES-789
- GOES-790
- GOES-791
- GOES-792
- GOES-793
- GOES-794
- GOES-795
- GOES-796
- GOES-797
- GOES-798
- GOES-799
- GOES-800
- GOES-801
- GOES-802
- GOES-803
- GOES-804
- GOES-805
- GOES-806
- GOES-807
- GOES-808
- GOES-809
- GOES-810
- GOES-811
- GOES-812
- GOES-813
- GOES-814
- GOES-815
- GOES-816
- GOES-817
- GOES-818
- GOES-819
- GOES-820
- GOES-821
- GOES-822
- GOES-823
- GOES-824
- GOES-825
- GOES-826
- GOES-827
- GOES-828
- GOES-829
- GOES-830
- GOES-831
- GOES-832
- GOES-833
- GOES-834
- GOES-835
- GOES-836
- GOES-837
- GOES-838
- GOES-839
- GOES-840
- GOES-841
- GOES-842
- GOES-843
- GOES-844
- GOES-845
- GOES-846
- GOES-847
- GOES-848
- GOES-849
- GOES-850
- GOES-851
- GOES-852
- GOES-853
- GOES-854
- GOES-855
- GOES-856
- GOES-857
- GOES-858
- GOES-859
- GOES-860
- GOES-861
- GOES-862
- GOES-863
- GOES-864
- GOES-865
- GOES-866
- GOES-867
- GOES-868
- GOES-869
- GOES-870
- GOES-871
- GOES-872
- GOES-873
- GOES-874
- GOES-875
- GOES-876
- GOES-877
- GOES-878
- GOES-879
- GOES-880
- GOES-881
- GOES-882
- GOES-883
- GOES-884
- GOES-885
- GOES-886
- GOES-887
- GOES-888
- GOES-889
- GOES-890
- GOES-891
- GOES-892
- GOES-893
- GOES-894
- GOES-895
- GOES-896
- GOES-897
- GOES-898
- GOES-899
- GOES-900
- GOES-901
- GOES-902
- GOES-903
- GOES-904
- GOES-905
- GOES-906
- GOES-907
- GOES-908
- GOES-909
- GOES-910
- GOES-911
- GOES-912
- GOES-913
- GOES-914
- GOES-915
- GOES-916
- GOES-917
- GOES-918
- GOES-919
- GOES-920
- GOES-921
- GOES-922
- GOES-923
- GOES-924
- GOES-925
- GOES-926
- GOES-927
- GOES-928
- GOES-929
- GOES-930
- GOES-931
- GOES-932
- GOES-933
- GOES-934
- GOES-935
- GOES-936
- GOES-937
- GOES-938
- GOES-939
- GOES-940
- GOES-941
- GOES-942
- GOES-943
- GOES-944
- GOES-945
- GOES-946
- GOES-947
- GOES-948
- GOES-949
- GOES-950
- GOES-951
- GOES-952
- GOES-953
- GOES-954
- GOES-955
- GOES-956
- GOES-957
- GOES-958
- GOES-959
- GOES-960
- GOES-961
- GOES-962
- GOES-963
- GOES-964
- GOES-965
- GOES-966
- GOES-967
- GOES-968
- GOES-969
- GOES-970
- GOES-971
- GOES-972
- GOES-973
- GOES-974
- GOES-975
- GOES-976
- GOES-977
- GOES-978
- GOES-979
- GOES-980
- GOES-981
- GOES-982
- GOES-983
- GOES-984
- GOES-985
- GOES-986
- GOES-987
- GOES-988
- GOES-989
- GOES-990
- GOES-991
- GOES-992
- GOES-993
- GOES-994
- GOES-995
- GOES-996
- GOES-997
- GOES-998
- GOES-999
- GOES-1000

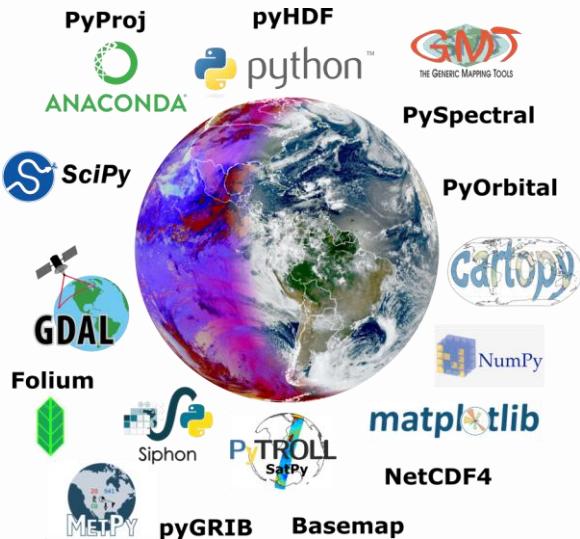
Data Access, Processing and Visualization

Data Access



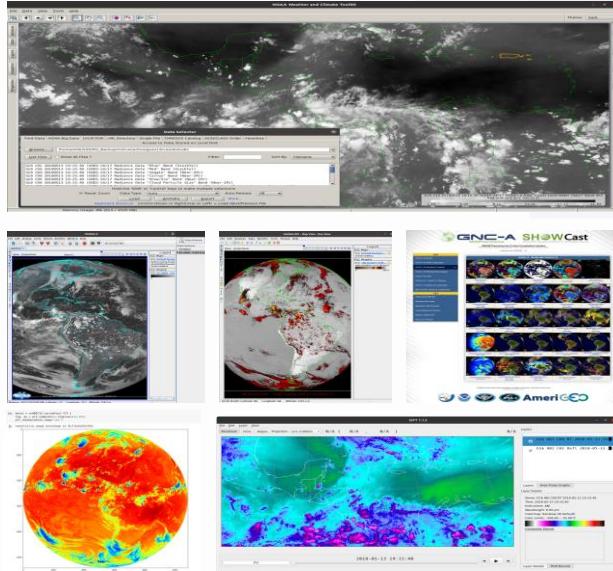
GRB, HRIT/EMWIN, HDR,
GEONETCast-Americas,
Cloud Services, UNIDATA (IDD,
THREDDS), NOAA CLASS, and other

Data Processing



Many Python libraries available to process GOES-R / JPSS data (and many other satellites). There are other solutions / programming languages

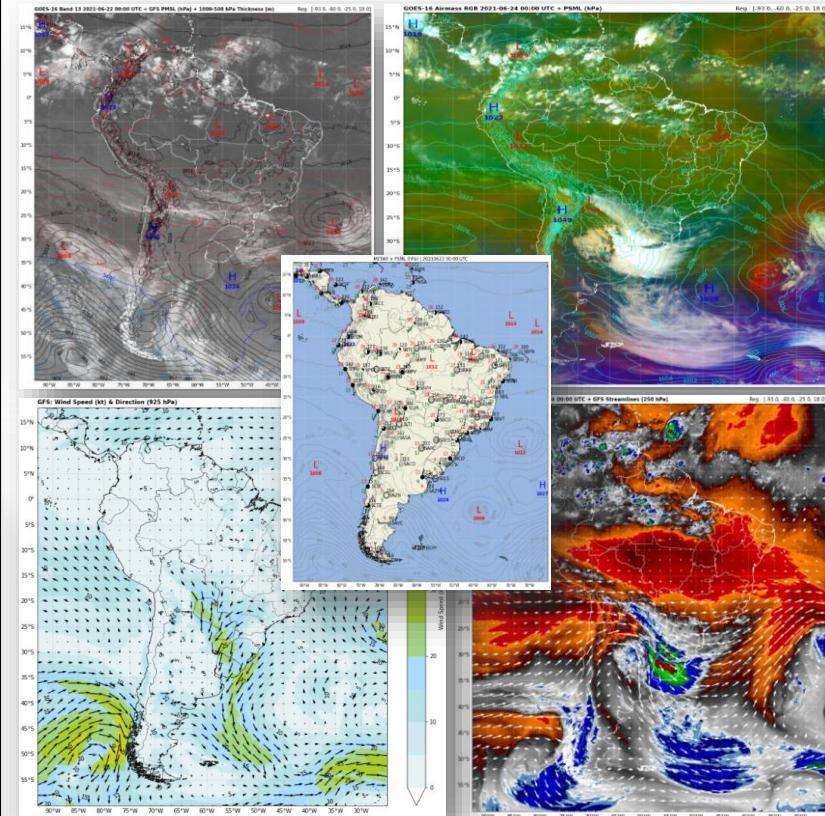
Visualization



AWIPS, McIDAS, IDV, SWIFT,
WCT, Python, SHOWCast,
SLIDER, DSAT, and many other
options for visualizing satellite data

Data Access, Processing and Visualization

We have seen during the Python training the possibility of processing products. But how can we generate and visualize data operationally?





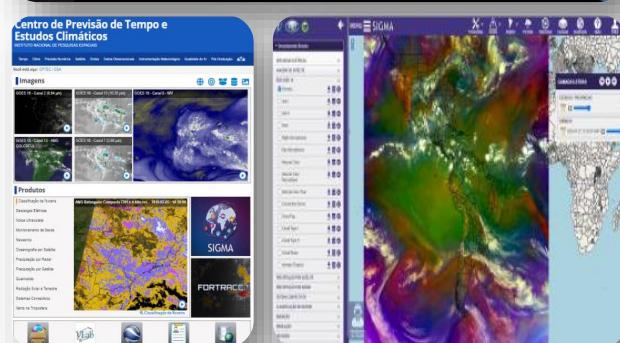
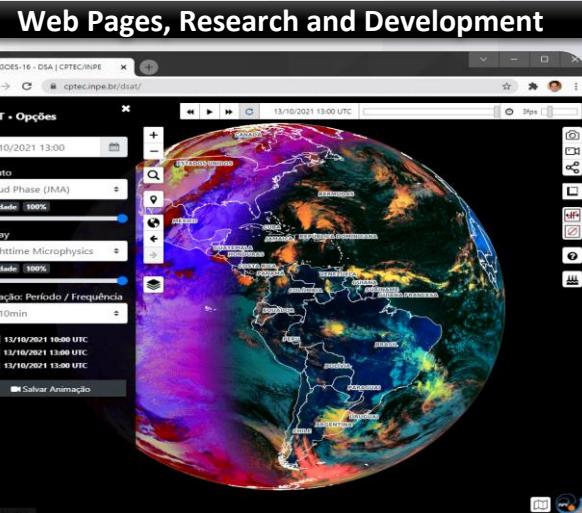
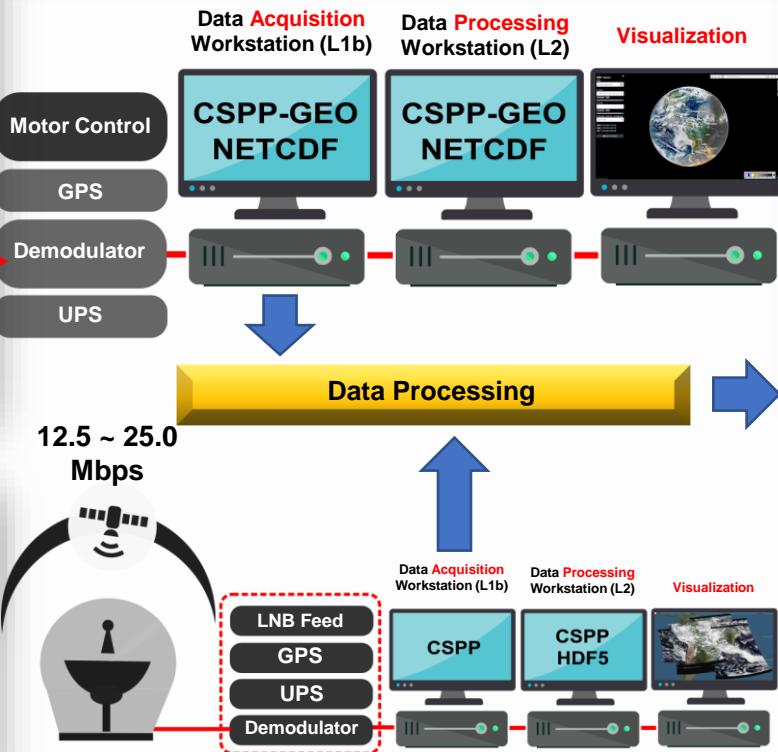
Example: INPE's Meteorological Satellites Division



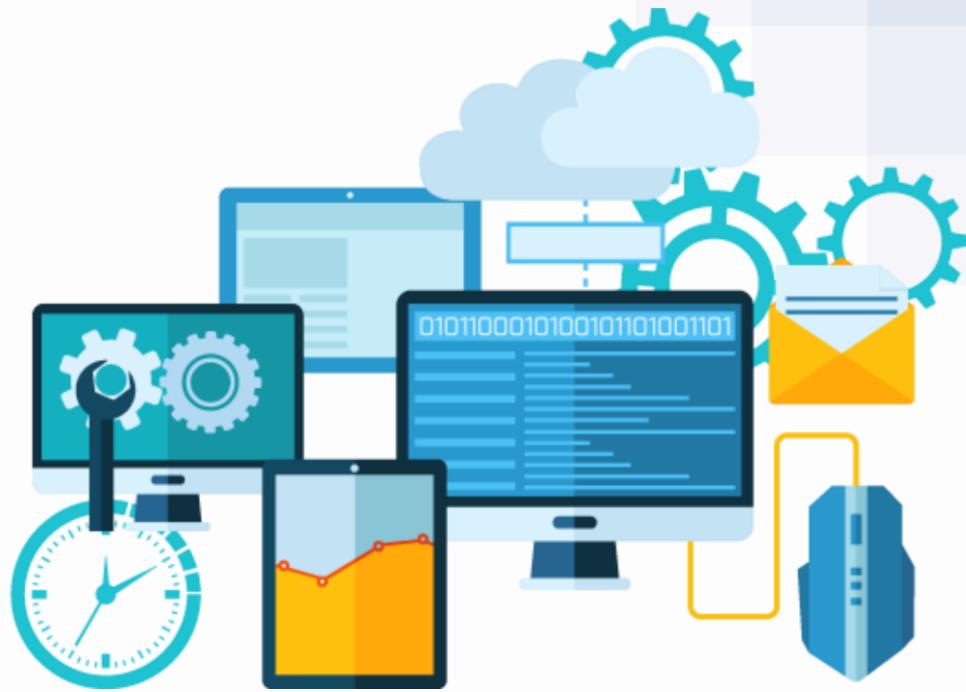
JPSS / LEO



**Note: GRB / GNC-A / AWS / PDA
(we process what is available first)**



The Problem: Human / Technological Resources

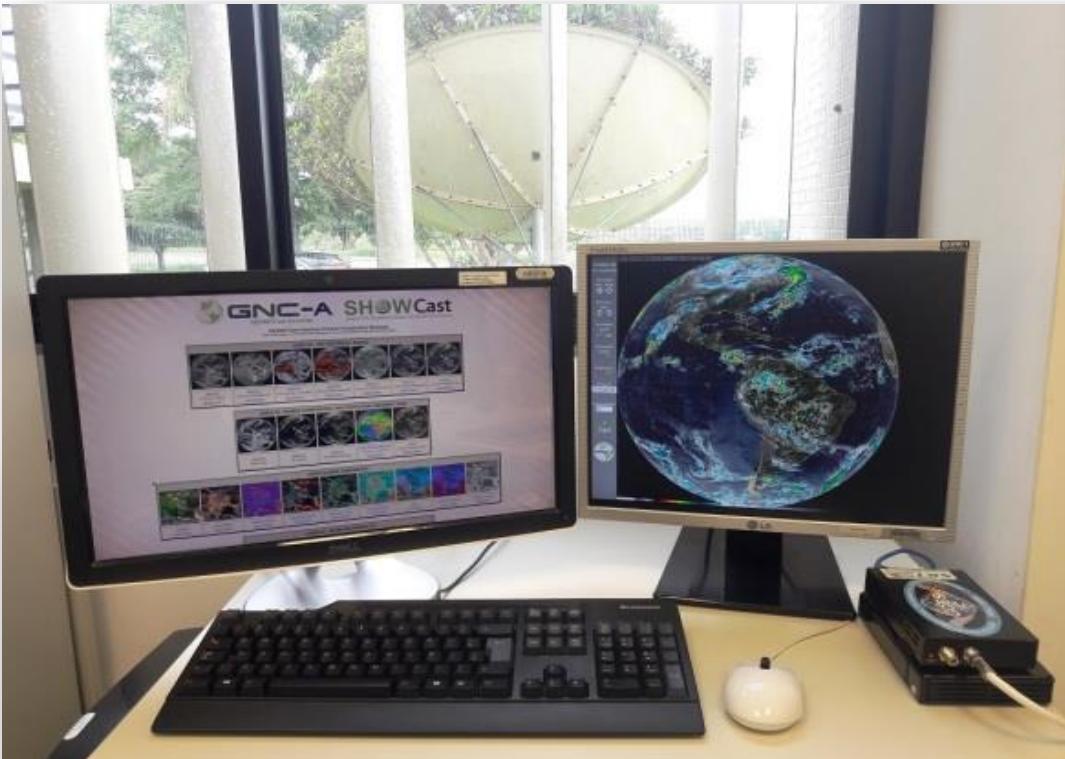


In most cases, the human and technological resources are not available to develop custom products and display interfaces. That's where SHOWCast could come in handy. Let's see...

The SHOWCast Solution

Download the latest version at: <https://geonetcast.wordpress.com/showcast/>

First version of SHOWCast running on a GNC-A station (November 6, 2019)



SHOWCast

Simple HTML Operational Wrapper for GEONETCast-Americas

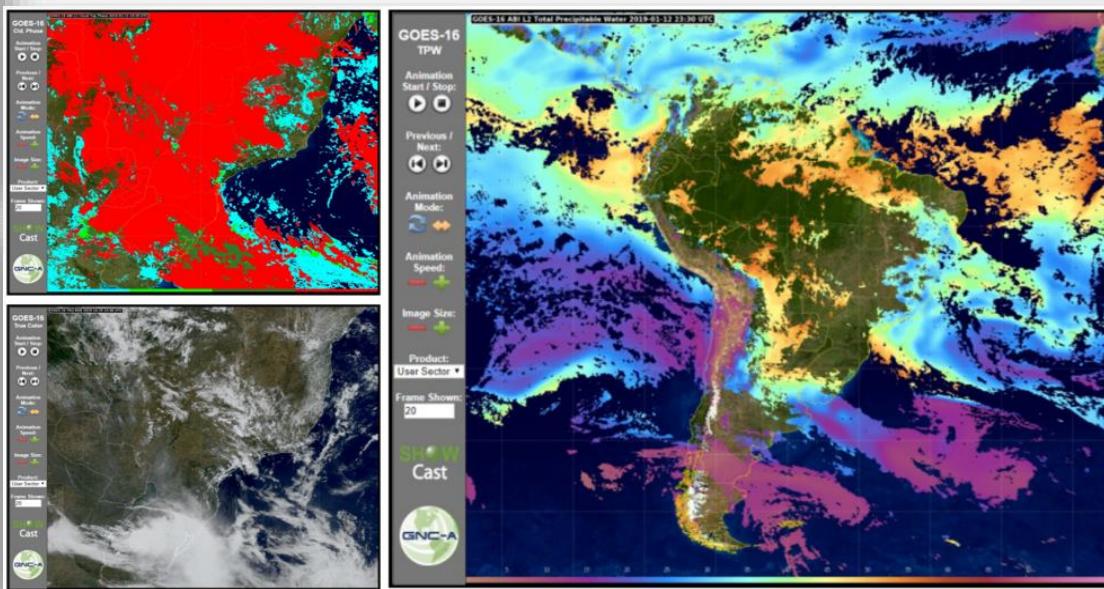
SHOWCast was created to provide a simple yet powerful solution for operational data processing and visualization.



SHOWCast: Main Goals



- Provide a free tool that can be customized (both processing and display) and put to work without the need for a GREAT knowledge of programming / web development (human resources).
- Provide a free tool that can be adapted to the available hardware (technology resources).



SHOWCast: Different Types of Users

Users wanting to use the processing and visualization tools. Adjustments according to user needs.

**Interfaz de visualización de productos satelitales del sistema GEONETCast-América para MARN El Salvador.
(GEONETCast-America Product Visualization Interface)**

IMPORTANTE:

- El correcto análisis e interpretación de estos productos es responsabilidad del usuario final. Considerar una interpretación realizada por personas no calificadas puede dar lugar a información errónea e imprudente.
- Siempre consultar los canales oficiales del Observatorio Ambiental del MARN para obtener la información más actualizada sobre el estado y pronóstico del tiempo.
- Este sistema de producción y visualización se encuentra en etapa **EXPERIMENTAL**, por lo que se pueden realizar cambios sin previo aviso así como también pueden ocurrir fallas en la transmisión y visualización de algunas imágenes.
- Resolución de pantalla recomendada: 1920x1080.

Indicaciones:

- Haga click sobre las imágenes para visualizar la más reciente, o haga click sobre el nombre de cada producto (En lo que se encuentre habilitado) para visualizar una animación de las 10 imágenes más recientes.

GEOSTATIONARY-El Salvador

POLAR

NWP/FORECAST

Credits: William Abarca (MARN El Salvador)

Users that already have means for visualization and would just like to use the example scripts

Imagenes Satelitales - GOES 16

Visualice la animación de imágenes en alta resolución de las últimas horas en diferentes áreas y canales.

Sudamérica **Mercosur** **Paraguay** **Visualizador de Video**

Falso Color **Imagen 4** **Velocidad: 6**

Descargas Atmosféricas

Banda 11

Banda 02 0.44 μm (Visible)

Banda 07 1.6 μm (Infrared)

Banda 08 8.6 μm (Tropical Water Vapor)

Banda 09

Credits: Ever Barreto (Asuncion Catholic University) / Wilson Caballero (DINAC) - Paraguay

New adaptations and functions.

INMET SEPIS

METEOSAT 9° RGB COMPOSITES (MSG)

METEOSAT 9° SEVIRI INDIVIDUAL CHANNELS (MSG)

INMET SEPIS

GEOSTACIONARIO

POLAR

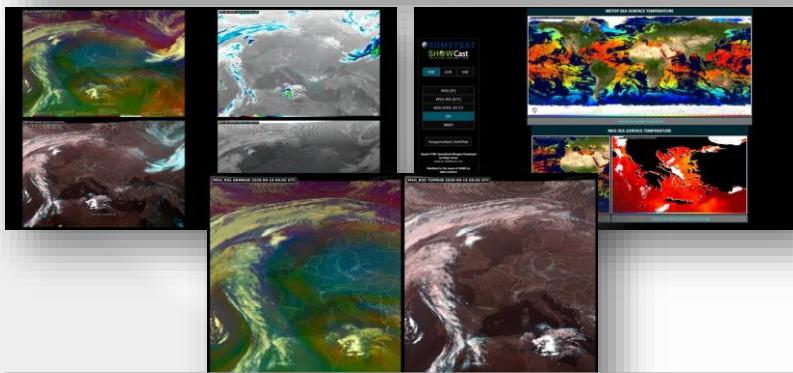
APLICACIONES

Credits: Kleber Ataíde (INMET - Brazil)



SHOWCast: Adaptation Examples

The figure displays two sections of the EUMETSAT ShowCast interface. The top section, titled "METEOSAT 0° RGB COMPOSITES (MSG)", shows a 2x5 grid of global satellite imagery. The left column contains "Visible" and "Infrared" images, while the right column contains "Cloud Map", "Rainbow Colour", and "Flag Meteosat" images. The bottom section, titled "METEOSAT 0° SEVIRI INDIVIDUAL CHANNELS (MSG)", shows a 2x5 grid of global satellite imagery for individual SEVIRI channels: Channel 01 (VIS 0.6), Channel 02 (VIS 0.8), Channel 03 (VIS 1.6), Channel 04 (MWV 3.7), and Channel 06 (MWV 7.3). The interface includes a sidebar with navigation links like FDK, EUR, GRC, MSG (0°), MSG-RSS (0.5°), MSG-ICD (41.5°), SST, and WMO, and a "Eγγραμμονή UserView" button.



Credits: Dimitrios Papanastasiou (HNMS - Greece)

INMET SEPIST
SEÇÃO DE PRODUTOS DE IMAGENS DE SATELITES

Interface de Visualização de Produtos de Imagens de Satélites.

Área Total

GEOESTACIONÁRIO

- GOES-16 (Bandas sensor ABI)
- GOES-16 RGB Composições
- GOES-16 (Produtos derivados)
- GOES-16 Imagemamento Multispectral
- GOES-16 GLM (RAIOS)
- GOES-16 & GOES-17 (Mosaico)
- GOES-17 (Bandas & Composições)
- METEOSAT (Bandas & Composições)

POLAR

- JPSS & GCOM-W1
- Taxa de Precipitação Horária
- Total de Água Precipitável-TPW (Composição)
- Mapemento de Áreas Inundadas (Produtos)
- Temperatura da Superfície do Mar (MetOp Global SST)
- Gelo Oceânico (Produtos)

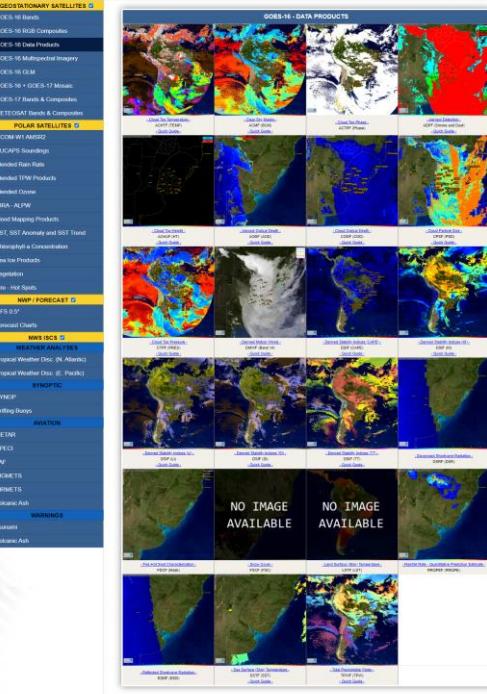
APLICATIVOS

- Painel de Produtos de Satélites (1 X 2)
- Compara Produtos de Satélites
- Slideshow de Produtos
- Alta Resolução-GeoColor+Raio(GLM)GOES-16

Transferring data from geonetcast.inmet.gov.br...

The screenshot displays the INMET SEPIST interface, which is a web-based application for visualizing satellite data. The main header features the INMET logo and the text "SEÇÃO DE PRODUTOS DE IMAGENS DE SATELITES". Below the header, a sub-header reads "Interface de Visualização de Produtos de Imagens de Satélites." A dropdown menu labeled "Área Total" is visible. The left sidebar contains several sections: "GEOESTACIONÁRIO" listing various GOES-16 and GOES-17 products; "POLAR" listing JPSS & GCOM-W1 products; and "APLICATIVOS" listing various visualization and comparison tools. The central area shows a grid of satellite imagery, with the top row specifically for GOES-16 sensor bands. The bottom right corner of the main window shows a "Google Earth" interface. A large watermark for "Sistema Oficial do INMET - INMET/SEPIST" is overlaid across the entire interface.

Credits: Kleber Ataíde (INMET – Brazil)



SHOWCast: Demonstration





SHOWCast: Installation and Configuration

Download the latest version at: <https://geonetcast.wordpress.com/showcast/>



	<h1>SHOWCast</h1> <p>INSTALLATION MANUAL</p>																																																																																																																									
<h2>CONTENTS</h2> <table> <tr> <td>1</td> <td>INTRODUCTION</td> <td>.....</td> <td>4</td> </tr> <tr> <td> 1.1</td> <td>Objective</td> <td>.....</td> <td>4</td> </tr> <tr> <td>2</td> <td>DOWNLOADING SHOWCAST</td> <td>.....</td> <td>5</td> </tr> <tr> <td>3</td> <td>SHOWCAST DIRECTORY STRUCTURE</td> <td>.....</td> <td>5</td> </tr> <tr> <td>4</td> <td>OPENING THE SHOWCAST INTERFACE FOR THE FIRST TIME</td> <td>.....</td> <td>6</td> </tr> <tr> <td>5</td> <td>INSTALLLING THE SHOWCAST PROCESSING MODULE</td> <td>.....</td> <td>7</td> </tr> <tr> <td> 5.1</td> <td>Installing on Windows</td> <td>.....</td> <td>8</td> </tr> <tr> <td> 5.2</td> <td>Installing on Linux</td> <td>.....</td> <td>8</td> </tr> <tr> <td> 5.3</td> <td>The SHOWCast Installer Terminal</td> <td>.....</td> <td>8</td> </tr> <tr> <td>6</td> <td>BASIC SHOWCAST CONFIGURATION</td> <td>.....</td> <td>12</td> </tr> <tr> <td> 6.1</td> <td>Configuring the showcast_start.py file</td> <td>.....</td> <td>12</td> </tr> <tr> <td> 6.2</td> <td>Configuring the showcast_config.py file</td> <td>.....</td> <td>13</td> </tr> <tr> <td> 6.3</td> <td>Configuring the showcast_cleaner.py file</td> <td>.....</td> <td>15</td> </tr> <tr> <td> 6.4</td> <td>Configuring the showcast_start_windows.bat or showcast_start_linux.sh file</td> <td>.....</td> <td>16</td> </tr> <tr> <td>7</td> <td>ADVANCED SHOWCAST CONFIGURATION</td> <td>.....</td> <td>16</td> </tr> <tr> <td> 7.1</td> <td>Parallel processing</td> <td>.....</td> <td>16</td> </tr> <tr> <td> 7.2</td> <td>Network configuration</td> <td>.....</td> <td>17</td> </tr> <tr> <td>8</td> <td>STARTING THE SHOWCAST PROCESSING MODULE</td> <td>.....</td> <td>19</td> </tr> <tr> <td>9</td> <td>THE SHOWCAST IMAGERY AND HTML STRUCTURE</td> <td>.....</td> <td>21</td> </tr> <tr> <td>10</td> <td>THE SHOWCAST PRODUCT SELECTION INTERFACE</td> <td>.....</td> <td>22</td> </tr> <tr> <td> 10.1</td> <td>Selecting a product category</td> <td>.....</td> <td>23</td> </tr> <tr> <td> 10.2</td> <td>Opening a quicklook</td> <td>.....</td> <td>24</td> </tr> <tr> <td> 10.3</td> <td>Changing from the "Full Disk" interface to the "User Sector" interface</td> <td>.....</td> <td>25</td> </tr> <tr> <td> 10.4</td> <td>Visualizing a Product Quick Guide</td> <td>.....</td> <td>26</td> </tr> <tr> <td>11</td> <td>THE SHOWCAST ANIMATION INTERFACE</td> <td>.....</td> <td>27</td> </tr> <tr> <td> 11.1</td> <td>Animation interface commands</td> <td>.....</td> <td>28</td> </tr> <tr> <td>12</td> <td>CUSTOMIZING THE PLOTS</td> <td>.....</td> <td>29</td> </tr> <tr> <td> 12.1</td> <td>Using your own logo</td> <td>.....</td> <td>29</td> </tr> <tr> <td> 12.2</td> <td>Using your own labels</td> <td>.....</td> <td>29</td> </tr> <tr> <td>13</td> <td>OPTIMIZING SHOWCAST ACCORDING TO THE AVAILABLE HARDWARE</td> <td>.....</td> <td>31</td> </tr> </table>			1	INTRODUCTION	4	1.1	Objective	4	2	DOWNLOADING SHOWCAST	5	3	SHOWCAST DIRECTORY STRUCTURE	5	4	OPENING THE SHOWCAST INTERFACE FOR THE FIRST TIME	6	5	INSTALLLING THE SHOWCAST PROCESSING MODULE	7	5.1	Installing on Windows	8	5.2	Installing on Linux	8	5.3	The SHOWCast Installer Terminal	8	6	BASIC SHOWCAST CONFIGURATION	12	6.1	Configuring the showcast_start.py file	12	6.2	Configuring the showcast_config.py file	13	6.3	Configuring the showcast_cleaner.py file	15	6.4	Configuring the showcast_start_windows.bat or showcast_start_linux.sh file	16	7	ADVANCED SHOWCAST CONFIGURATION	16	7.1	Parallel processing	16	7.2	Network configuration	17	8	STARTING THE SHOWCAST PROCESSING MODULE	19	9	THE SHOWCAST IMAGERY AND HTML STRUCTURE	21	10	THE SHOWCAST PRODUCT SELECTION INTERFACE	22	10.1	Selecting a product category	23	10.2	Opening a quicklook	24	10.3	Changing from the "Full Disk" interface to the "User Sector" interface	25	10.4	Visualizing a Product Quick Guide	26	11	THE SHOWCAST ANIMATION INTERFACE	27	11.1	Animation interface commands	28	12	CUSTOMIZING THE PLOTS	29	12.1	Using your own logo	29	12.2	Using your own labels	29	13	OPTIMIZING SHOWCAST ACCORDING TO THE AVAILABLE HARDWARE	31
1	INTRODUCTION	4																																																																																																																							
1.1	Objective	4																																																																																																																							
2	DOWNLOADING SHOWCAST	5																																																																																																																							
3	SHOWCAST DIRECTORY STRUCTURE	5																																																																																																																							
4	OPENING THE SHOWCAST INTERFACE FOR THE FIRST TIME	6																																																																																																																							
5	INSTALLLING THE SHOWCAST PROCESSING MODULE	7																																																																																																																							
5.1	Installing on Windows	8																																																																																																																							
5.2	Installing on Linux	8																																																																																																																							
5.3	The SHOWCast Installer Terminal	8																																																																																																																							
6	BASIC SHOWCAST CONFIGURATION	12																																																																																																																							
6.1	Configuring the showcast_start.py file	12																																																																																																																							
6.2	Configuring the showcast_config.py file	13																																																																																																																							
6.3	Configuring the showcast_cleaner.py file	15																																																																																																																							
6.4	Configuring the showcast_start_windows.bat or showcast_start_linux.sh file	16																																																																																																																							
7	ADVANCED SHOWCAST CONFIGURATION	16																																																																																																																							
7.1	Parallel processing	16																																																																																																																							
7.2	Network configuration	17																																																																																																																							
8	STARTING THE SHOWCAST PROCESSING MODULE	19																																																																																																																							
9	THE SHOWCAST IMAGERY AND HTML STRUCTURE	21																																																																																																																							
10	THE SHOWCAST PRODUCT SELECTION INTERFACE	22																																																																																																																							
10.1	Selecting a product category	23																																																																																																																							
10.2	Opening a quicklook	24																																																																																																																							
10.3	Changing from the "Full Disk" interface to the "User Sector" interface	25																																																																																																																							
10.4	Visualizing a Product Quick Guide	26																																																																																																																							
11	THE SHOWCAST ANIMATION INTERFACE	27																																																																																																																							
11.1	Animation interface commands	28																																																																																																																							
12	CUSTOMIZING THE PLOTS	29																																																																																																																							
12.1	Using your own logo	29																																																																																																																							
12.2	Using your own labels	29																																																																																																																							
13	OPTIMIZING SHOWCAST ACCORDING TO THE AVAILABLE HARDWARE	31																																																																																																																							



SHOWCast

INSTALLATION MANUAL



	14 THE SHOWCAST "CLOUD" MODULE	32
	14.1 Configuring the Cloud module	33
	14.2 Starting the Cloud module	34
	15 SHOWCAST RELEASE HISTORY	35
	16 SHOWCAST USER EXAMPLES	36
	17 ADVANCED CONFIGURATION VIA SCRIPTS	42
	18 CONCLUSION	43
	19 ACKNOWLEDGEMENTS	44
	20 APPENDIX I: VISUALIZED PRODUCTS	45
	21 APPENDIX II: READER NOTES	66



GNC-A
GEONETCast-Americas

Click on the images to visualize the latest acquisition or click on the hyperlinks to open the animation archive.

SHOWCast

Simple HTML Operational Wrapper for GEONETCast-Americas

Visualization Area:

GEOSTATIONARY SATELLITES 

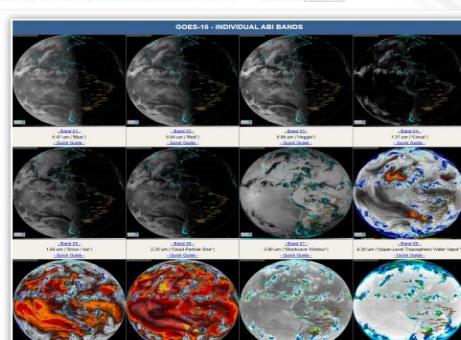
- [GOES-16 Bands](#)
- [GOES-16 RGB Composites](#)
- [GOES-16 Data Products](#)
- [GOES-16 Multispectral Imagery](#)
- [GOES-16 GLM](#)
- [GOES-16 + GOES-17 Mosaic](#)
- [GOES-16 Bands & Composites](#)
- [METEOSAT Bands & Composites](#)

POLAR SATELLITES 

- [GOES-16 MSG2](#)
- [NOAA-15 Scansounds](#)
- [Blended Rain Rate](#)
- [Blended TPFV Products](#)
- [Blended Ozone](#)
- [CIRA - ALWP](#)
- [Flood Mapping Products](#)
- [SST, SST Anomaly and SST Trend](#)
- [Cloud/Aerosol Concentration](#)
- [Sea Ice Products](#)
- [Vegetation](#)
- [Fire - Hot Spots](#)

NWP / FORECAST 

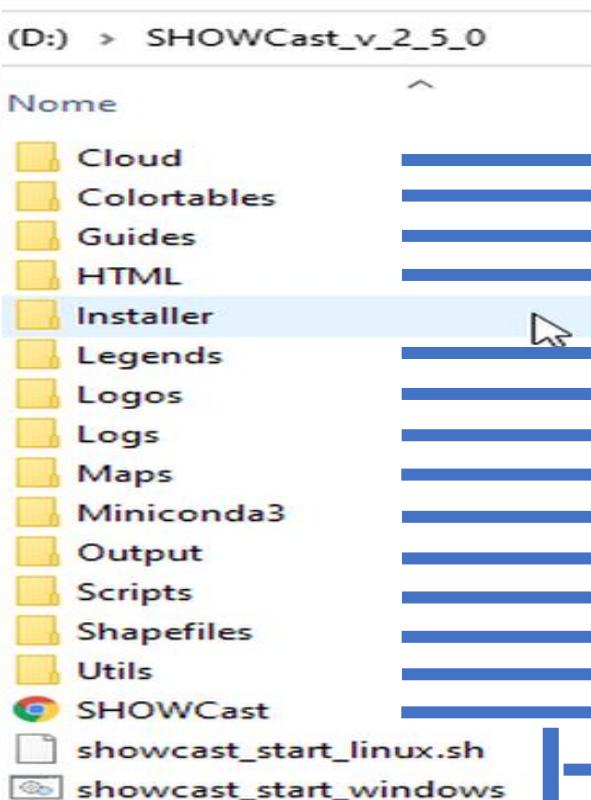
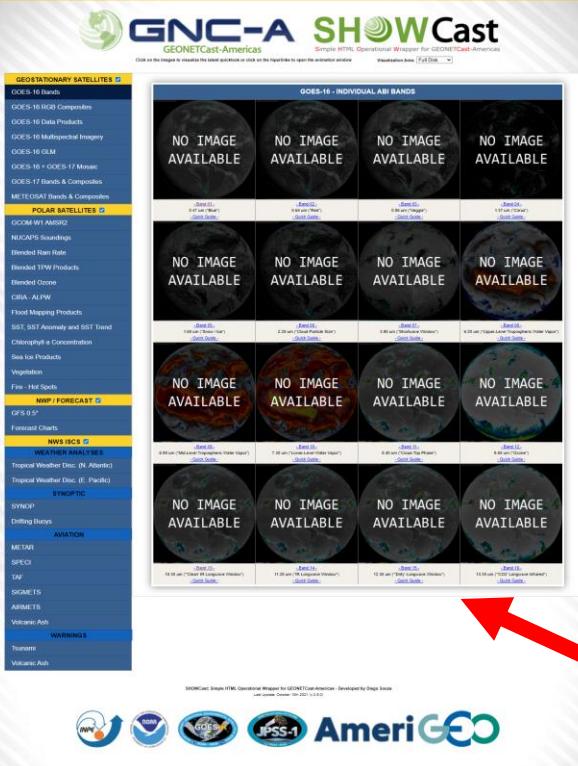
- [GFS 0.5°](#)
- [Forecast Charts](#)



SHOWCast: Installation Procedure

Download the latest version at: <https://geonetcast.wordpress.com/showcast/>

SHOWCast Menu: Opened for the first time



SHOWCast

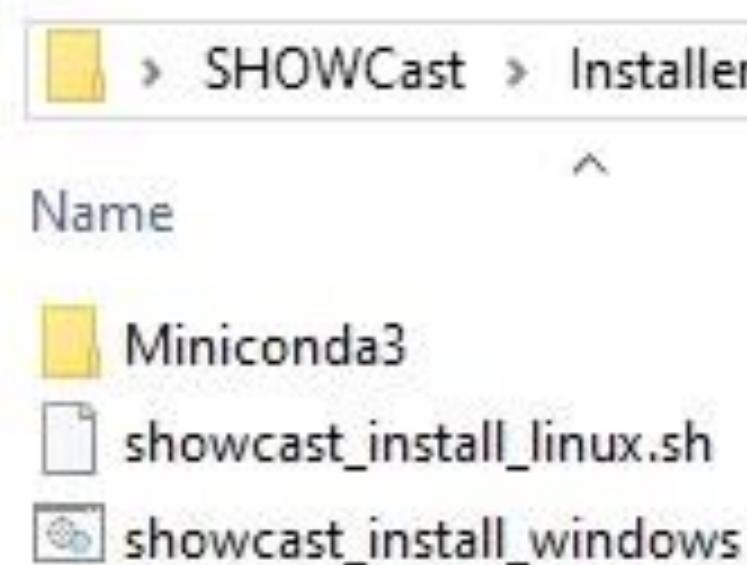
Simple HTML Operational Wrapper for GEONETCast-Americas

SHOWCast: Installation Procedure

Inside the "Installer" folder...

- Colortables
- Guides
- HTML
- Installer
- Legends
- Logos
- Logs

... We have two installation files (Windows or Linux)



Windows: Just double-click the ".bat" file

Linux: Change file permissions and run ".sh" script

The installation window will pop-up

```
C:\> C:\WINDOWS\system32\cmd.exe  
-----  
Welcome to the SHOWCast Installer!  
-----  
Step 1-) Miniconda will be installed.  
Do you want to proceed (Y/[N])? -
```

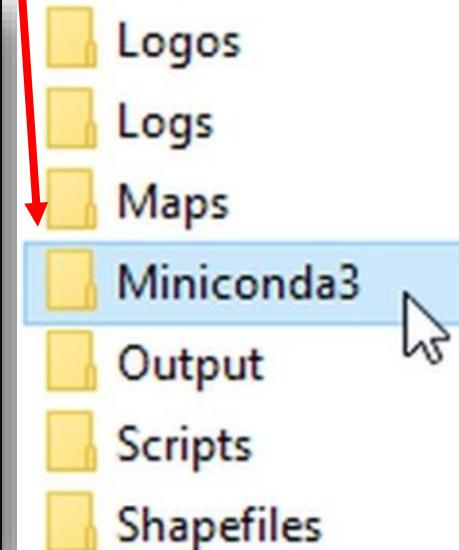
For both operating systems, the installation message will be the same.

This automated installation was introduced in version 2.0 and made things much easier for users.

SHOWCast: Installation Procedure

First, the “Miniconda 3” (virtual environment and package manager) will be installed and the “Miniconda3” folder will appear in the main SHOWCast directory. Note: You do not need to access this folder.

```
Welcome to the SHOWCast Installer!  
-----  
Step 1-) Miniconda will be installed.  
Do you want to proceed (Y/[N])?y  
Miniconda installation directory: C:\SHOWCast\Miniconda3\  
Installing Miniconda... [this will take some minutes]  
-
```



SHOWCast: Installation Procedure

Then, the “showcast” virtual environment is automatically created. This is where all the python libraries will be installed.

Welcome to the SHOWCast Installer!

Step 1-) Miniconda will be installed.

Do you want to proceed (Y/[N])?y

Miniconda installation directory: C:\SHOWCast\Miniconda3\

Installing Miniconda... [this will take some minutes]

Miniconda installation finished.

Step 2-) The SHOWCast environment will be created.

Do you want to proceed (Y/[N])?■

After a few minutes, when you see the following message,
the SHOWCast procesing tools installation is complete.

SHOWCast is installed. Now we may proceed with the
configuration.

Creating the SHOWCast environment... [this will take some minutes]

Collecting package metadata (repodata.json): done

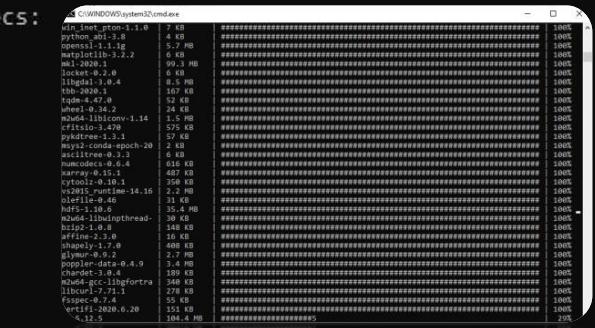
Solving environment: done

Package Plan

environment location: C:\SHOWCast\Miniconda3\envs\showcast

added / updated specs:

- cartopy
- gdal
- glymur
- matplotlib
- netcdf4
- pillow
- pyhdf
- pyorbital
- pyproj
- pyresample
- satpy



jpeg-9d | 344 KB | #####
m2w64-expat-2.1.1 | 160 KB | #####
scipy-1.3.2 | 14.6 MB | #####
krb5-1.3.3 | 850 KB | #####
pyproj-2.6.1.post1 | 156 KB | #####
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
To activate this environment, use
\$ conda activate showcast
To deactivate an active environment, use
\$ conda deactivate

Press any key to continue . . .

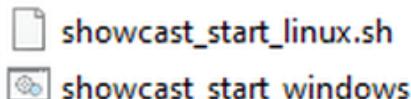
SHOWCast: Configuration Procedure

(D:) > SHOWCast_v_2_5_0 >

Nome

-  Cloud
-  Colortables
-  Guides
-  HTML
-  Installer
-  Legends
-  Logos
-  Logs
-  Maps
-  Miniconda3
-  Output
-  Scripts
-  Shapefiles
-  Utils
-  SHOWCast
-  showcast_start_linux.sh
-  showcast_start_windows

We basically have to configure four files



Parallel processing

Automatic deletion

Product selection

Data reception

showcast_start_linux.sh or showcast_start_windows.bat: Number of parallel processes

showcast_start.py: Your ingestion directory (from GNC-A, GRB, AWS, etc.)

showcast_config.py: Product configuration (which products you want to process and how you want to process them)

showcast_cleaner.py (optional): Automatic deletion of historical files (both ingestion and processing)

SHOWCast: showcast_start.py

```
41 #-----  
42 # GEONETCast-Americas ingestion directory (AVOID USING DIRECTORIES WITH SPACES)  
43 ingest_dir = 'D://data//fazzt//' # Windows Example - Change it according to your GNC-A Station  
44  
45 # SHOWCast visualization directory  
46 vis_dir = showcast_dir + '//HTML//Output//'  
47 #-----
```

It is also possible to use network directories:

```
ingest_dir = '//150.163.187.66//fazzt//'  
vis_dir = '//150.163.187.66//SHOWCast//HTML//Output//'
```

SHOWCast: `showcast_config.py`

```
429 #-----  
430 g16_band13_sec      = True # GOES-16 L2 CMI - Band 13 - USER SECTOR  
431  
432 g16_band13_sec_process    = 1                                # Process cicle for this product  
433 g16_band13_sec_directory  = ingest_dir + 'GOES-R-CMI-Imagery//Band13//' # Folder where the data is found  
434 g16_band13_sec_identifier = '*L2-CMIPF-M*C13_G16*.nc'          # Unique string on the file name  
435 g16_band13_sec_max_files = 1                                # Max number of historical files to be processed  
436 g16_band13_sec_extent     = [-63.0, -35.0, -35.0, -10.0]       # [min_lon, min_lat, max_lon, max_lat]  
437 g16_band13_sec_resolution = 2      # Max Res.: 2 km          # Final plot resolution  
438 g16_band13_sec_interval   = '00,10,20,30,40,50'           # Processing interval  
439 g16_band13_sec_config     = '_SEC'                          # Configuration string  
440 g16_band13_sec_script     = showcast_dir + '//Scripts//process_g1X_bands_sec.py' # Script to activate  
441 g16_band13_sec_output      = showcast_dir + '//Output//'        # Output folder  
442  
443 products.append('g16_band13_sec') # Add the product to the list  
444 #-----
```



SHOWCast: showcast_cleaner.py

```
31 #-----  
32 # USER CONFIGURATION BEGIN  
33 #-----  
34 #-----  
35 # GEONETCast-Americas ingestion directory (AVOID USING DIRECTORIES WITH SPACES)  
36 ingest_dir = 'D://data//fazzt//' ← Your ingestion directory  
37  
38 # To delete historical files in the output folder, set as True  
39 delete_historical_output = True ← Do you want to delete SHOWCast historical plots?  
40 # To delete historical files in the ingest folder, set as True  
41 delete_historical_ingest = False ← Do you want to delete ingestion historical files?  
42  
43 # Number of days and hours to keep files in the Output directory  
44 # The number of hours will be added to the number of days  
45 # e.g: Delete files older than 5 hours (max_days = 0 / max_hours = 5)  
46 # e.g: Delete files older than 1 day and 2 hours (max_days = 1 / max_hours = 2)  
47 max_days_output = 3 ← For how many days do you want to keep SHOWCast plots?  
48 max_hours_output = 0  
49  
50 # Number of days and hours to keep files in the Ingest directory  
51 # The number of hours will be added to the number of days  
52 # e.g: Delete files older than 5 hours (max_days = 0 / max_hours = 5)  
53 # e.g: Delete files older than 1 day and 2 hours (max_days = 1 / max_hours = 2)  
54 max_days_ingest = 3 ← For how many days do you want to keep the reception files?  
55 max_hours_ingest = 0  
56 #-----  
57 #-----  
58 # USER CONFIGURATION END  
59 #-----  
60 #-----
```

SHOWCast: Starting the Data Monitor and Processing

(D:) > SHOWCast_v_2_5_0 >

This will start one terminal per parallel process that has been configured:

Nome

- Cloud
- Colortables
- Guides
- HTML
- Installer
- Legends
- Logos
- Logs
- Maps
- Miniconda3
- Output
- Scripts
- Shapefiles
- Utils
- SHOWCast
- showcast_start_linux.sh
- showcast_start_windows

Windows:

```
4 :: Select the number of parallel SHOWCast processes  
5 SET /A num_process=1
```

Linux:

```
2 # Select the number of SHOWCast parallel processes  
3 declare -i num_process=1
```

Each process will process “x” products, according to the configuration in showcast_config.py



SHOWCast: Images Will Start to Appear



GNC-A
GEONETCast-Americas

SHOWCast
Simple HTML Operational Wrapper for GEONETCast-Americas

Click on the images to visualize the latest quicklook or click on the hyperlinks to open the animation window.

Visualization Area

GEOSTATIONARY SATELLITES

GOES-16 Bands

GOES-16 RGB Composites

GOES-16 Data Products

GOES-16 Multispectral Imagery

GOES-16 GLM

GOES-16 + GOES-17 Mosaic

GOES-17 Bands & Composites

METEOSAT Bands & Composites

POLAR SATELLITES

GCOM-W1 AMSR2

NUCAPS Soundings

Blended Rain Rate

Blended TPW Products

Blended Ozone

CIRA - ALPW

Flood Mapping Products

SST, SST Anomaly and SST Trend

Chlorophyll-a Concentration

Sea Ice Products

Vegetation

Fire - Hot Spots

NWP / FORECAST

GFS 0.5°

Forecast Charts

NWS ISCS

WEATHER ANALYSES

Tropical Weather Disc. (N. Atlantic)

Tropical Weather Disc. (E. Pacific)

SYNOPTIC

SYNOP

Drifting Buoys

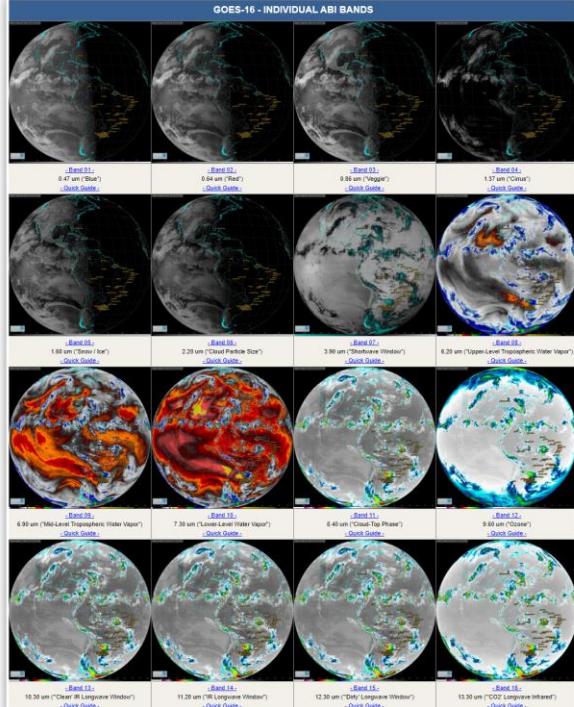
AVIATION

METAR

SPECI

TAF

SIGMETs



GNC-A
GEONETCast-Americas

SHOWCast
Simple HTML Operational Wrapper for GEONETCast-Americas

Click on the images to visualize the latest quicklook or click on the hyperlinks to open the animation window.

GEOSTATICORY SATELLITES

GOES-16 Bands

GOES-16 RGB Composites

GOES-16 Data Products

GOES-16 Multispectral Imagery

GOES-16 GLM

GOES-16 + GOES-17 Mosaic

GOES-17 Bands & Composites

METEOSAT Bands & Composites

POLAR SATELLITES

GCOM-W1 AMSR2

NUCAPS Soundings

Blended Rain Rate

Blended TPW Products

Blended Ozone

CIRA - ALPW

Flood Mapping Products

SST, SST Anomaly and SST Trend

Chlorophyll-a Concentration

Sea Ice Products

Vegetation

Fire - Hot Spots

NWP / FORECAST

GFS 0.5°

Forecast Charts

NWS ISCS

WEATHER ANALYSES

Tropical Weather Disc. (N. Atlantic)

Tropical Weather Disc. (E. Pacific)

SYNOPTIC

SYNOP

Drifting Buoys

AVIATION

METAR

SPECI

TAF

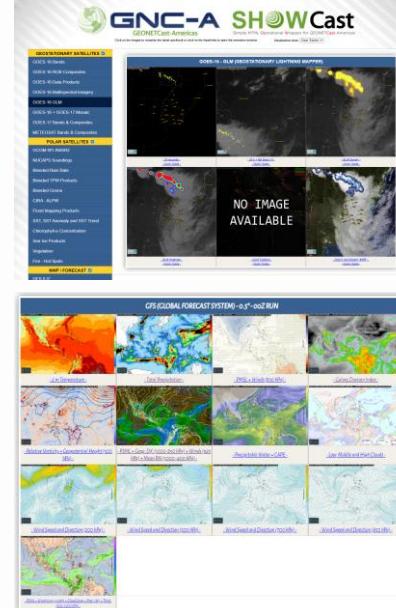
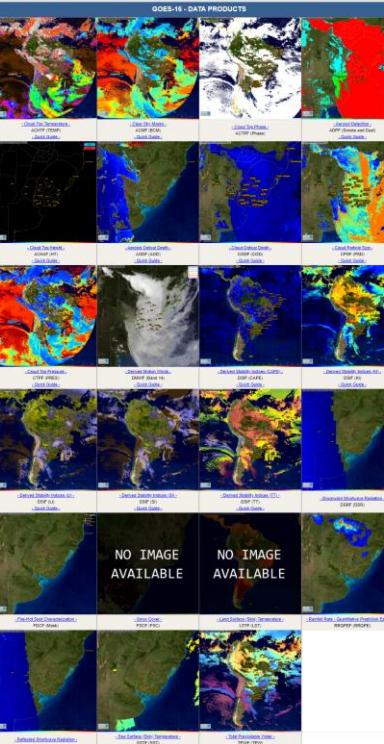
SIGMETs

Volcanic Ash

WARNINGS

Tsunami

Volcanic Ash



SHOWCast: Visualized Products

GEOSTATIONARY SATELLITES

- GOES-16 Bands
- GOES-16 RGB Composites
- GOES-16 Data Products
- GOES-16 Multispectral Imagery
- GOES-16 GLM
- GOES-16 + GOES-17 Mosaic
- GOES-17 Bands & Composites
- METEOSAT Bands & Composites

POLAR SATELLITES

- GCOM-W1 AMSR2
- NUCAPS Soundings
- Blended Rain Rate
- Blended TPW Products
- Blended Ozone
- CIRA - ALPW
- Flood Mapping Products
- SST, SST Anomaly and SST Trend
- Chlorophyll-a Concentration
- Sea Ice Products
- Vegetation
- Fire - Hot Spots

NWP / FORECAST

- GFS 0.5°
- Forecast Charts

NWS ISCS

WEATHER ANALYSES

 - Tropical Weather Disc. (N. Atlantic)
 - Tropical Weather Disc. (E. Pacific)

SYNOPTIC

 - SYNOP
 - Drifting Buoys

AVIATION

 - METAR
 - SPECI
 - TAF
 - SIGMETS
 - AIRMETs
 - Volcanic Ash

WARNINGS

 - Tsunami
 - Volcanic Ash



The screenshot shows the GNC-A SHOWCast interface. At the top, it displays "GNC-A SHOWCast" and "Simple HTML Operational Wrapper for GEONETCast-Americas". Below this is a navigation bar with links for "GEOSTATIONARY SATELLITES", "POlar SATELLITES", "NWP / FORECAST", "NWS ISCS", "WEATHER ANALYSES", "SYNOPTIC", "AVIATION", and "WARNINGS". The main area contains a grid of 12 circular global maps, each labeled with a date and time (e.g., "2023-09-01 00:00 UTC", "2023-09-01 06:00 UTC", etc.). Each map displays different weather and environmental data layers.

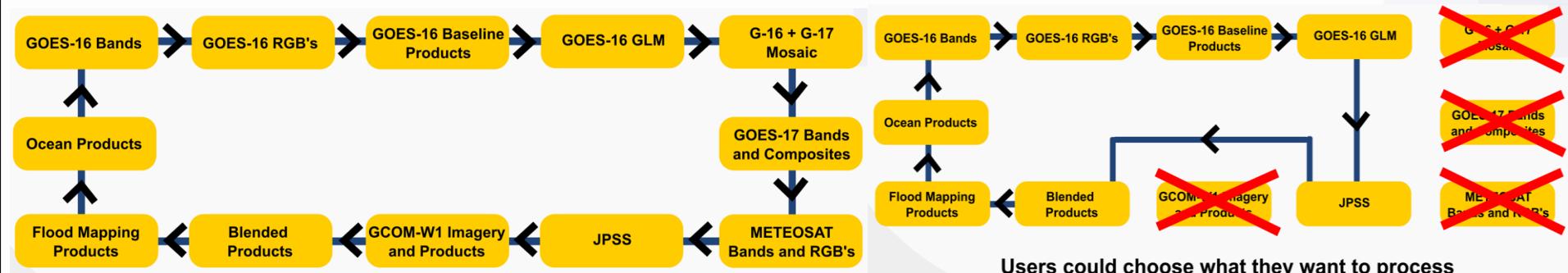
► GEONETCast-Americas Training for the Eastern Caribbean States

| Day 6 - Session 3: Introduction to SHOWCast



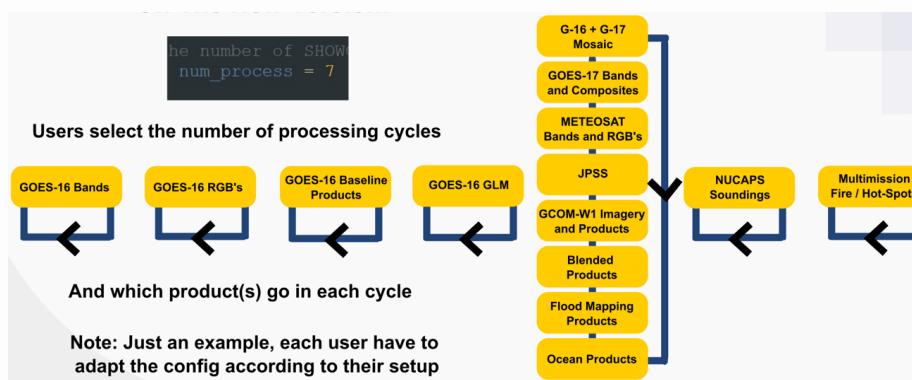
SHOWCast: Parallel Processing

In old versions, all processing was done sequentially.



Users could choose what they want to process

In newer versions, users can start parallel processes and choose which product to go in each cycle.

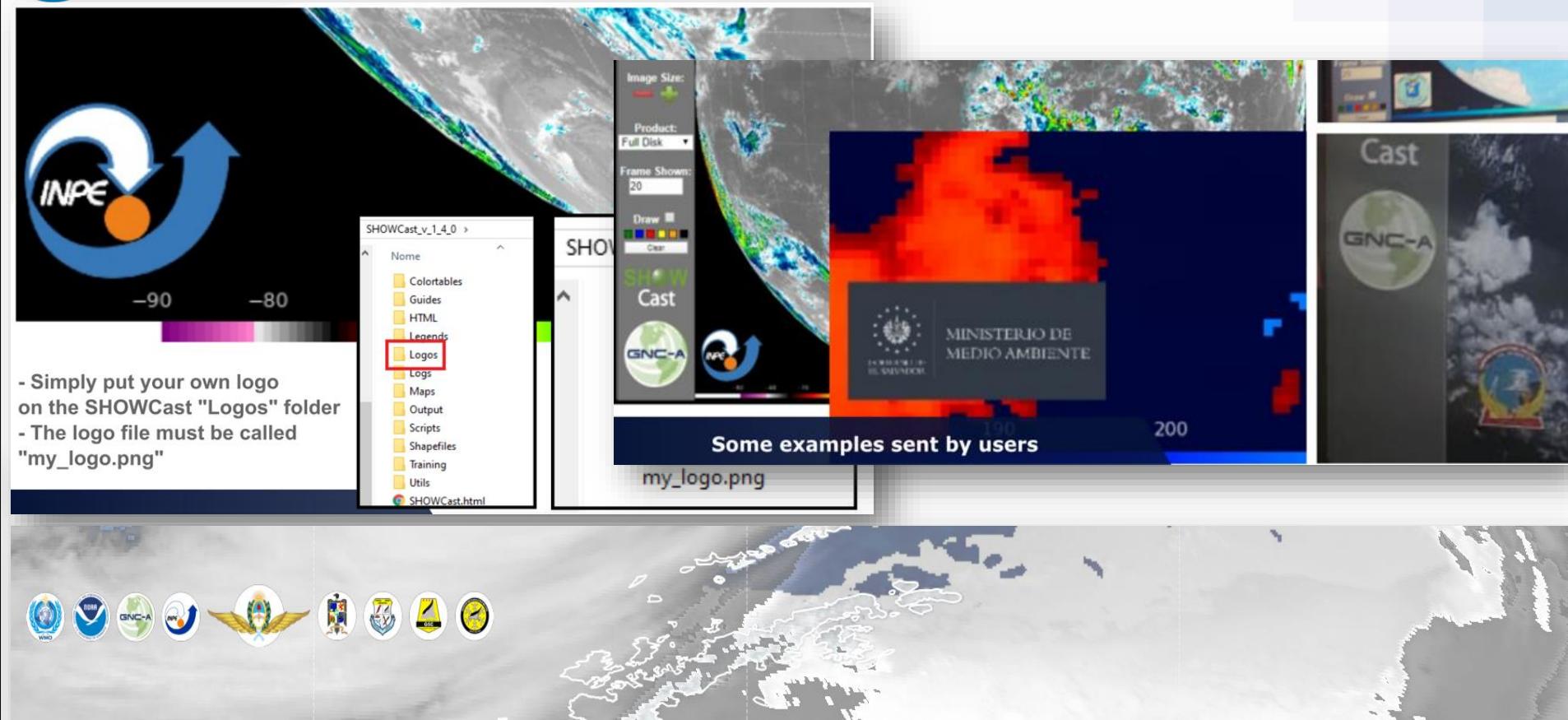


SHOWCast: Parallel Processing

In this variable, users select the process number for a given product

```
429 #  
430 g16_band13_sec      = True # GOES-16 L2 CMI - Band 13 - USER SECTOR  
431  
432 g16_band13_sec_process = 1          # Process cicle for this product  
433 g16_band13_sec_directory = ingest_dir + 'GOES-R-CMI-Imagery//Band13//'    # Folder where the data is found  
434 g16_band13_sec_identifier = '*L2-CMIPF-M*C13_G16*.nc'                      # Unique string on the file name  
435 g16_band13_sec_max_files = 1          # Max number of historical files to be processed  
436 g16_band13_sec_extent   = [-63.0, -35.0, -35.0, -10.0]                   # [min_lon, min_lat, max_lon, max_lat]  
437 g16_band13_sec_resolution = 2 # Max Res.: 2 km                         # Final plot resolution  
438 g16_band13_sec_interval = '00,10,20,30,40,50'                           # Processing interval  
439 g16_band13_sec_config  = '_SEC'                                         # Configuration string  
440 g16_band13_sec_script  = showcast_dir + '//Scripts//process_g1X_bands_sec.py' # Script to activate  
441 g16_band13_sec_output  = showcast_dir + '//Output//'                     # Output folder  
442  
443 products.append('g16_band13_sec') # Add the product to the list  
444 #-----
```

SHOWCast: Adding Your Own Logos



- Simply put your own logo on the SHOWCast "Logos" folder
- The logo file must be called "my_logo.png"

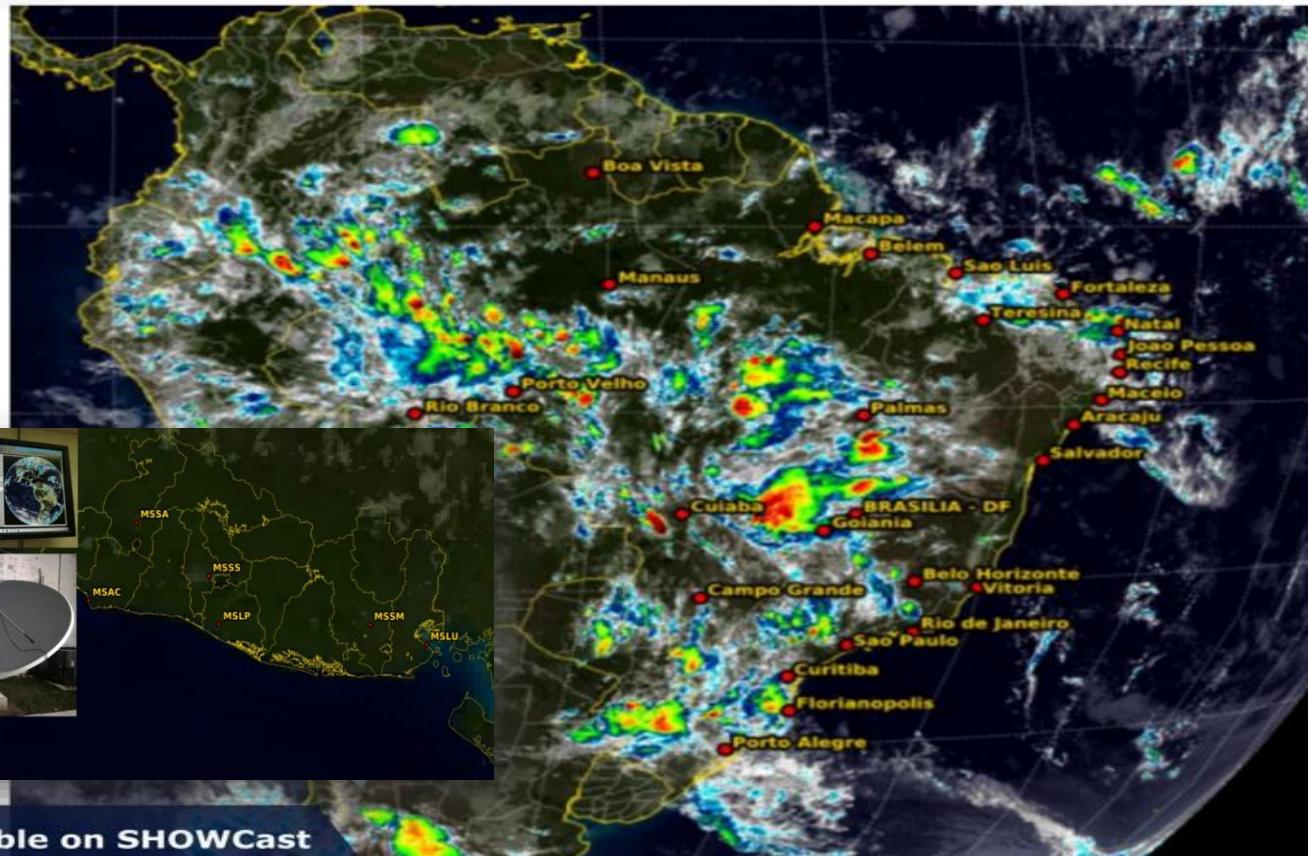
SHOWCast: Adding Your Own Labels

```
config.py 3  labels_g16.ini 12
1 [label_1]
2 label = My GNC-A
3 lon = -45.0075
4 lat = -22.6845
5 x_offset = 0.1
6 y_offset = 0.1
7 size = 8
8 color = gold
9 marker_type = bo
10 marker_color = red
11 marker_size = 5
12
```

SHOWCast_v_1_4_0 > Utils > La

Nome

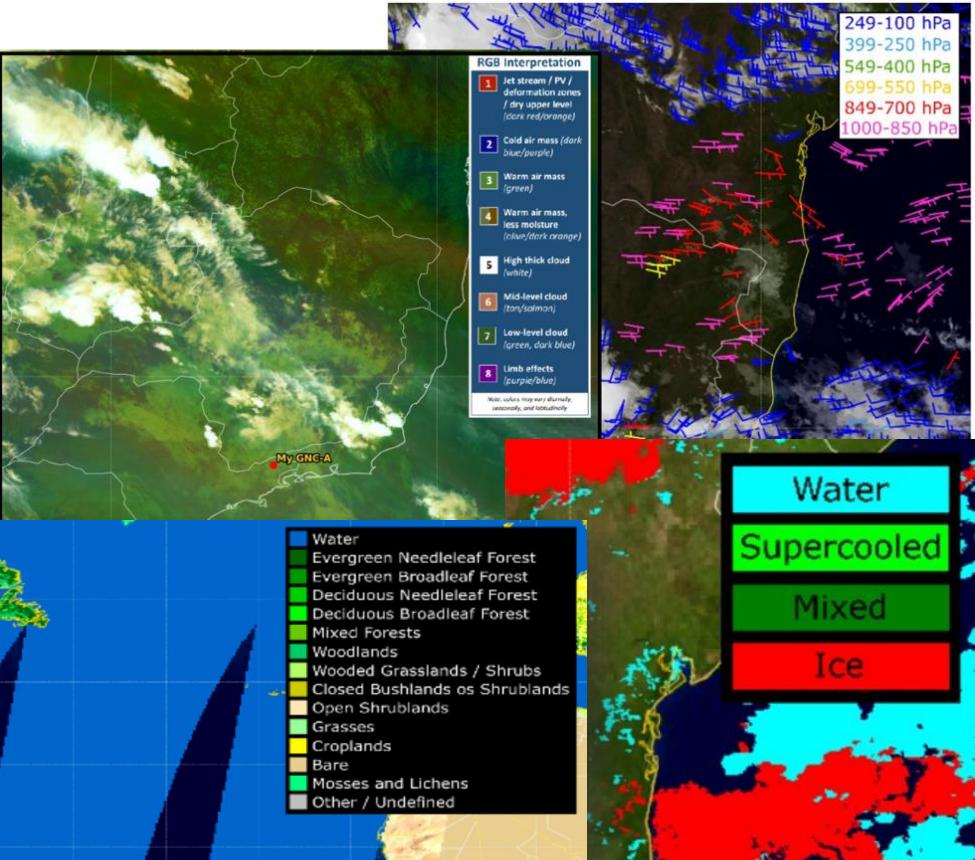
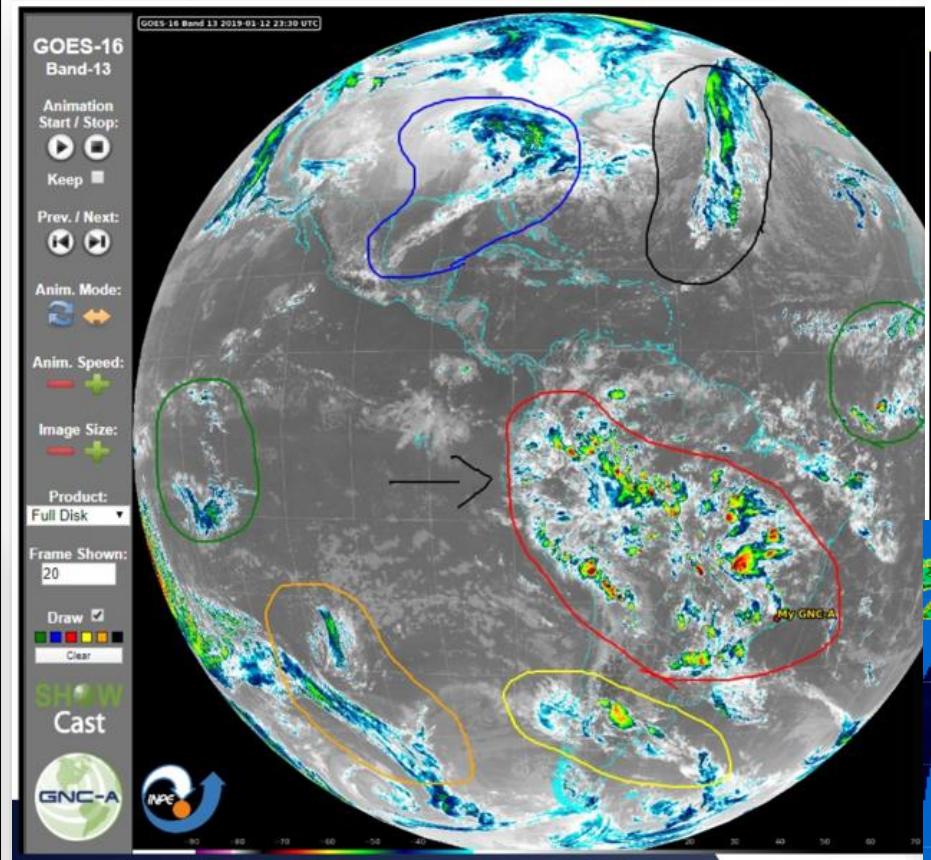
- labels_example.ini
- labels_g16.ini
- labels_g17.ini
- labels_msg.ini



Example label INI files available on SHOWCast



SHOWCast: Adding Drawings and Custom Legends



SHOWCast: Optimization x Hardware

It is possible to adapt SHOWCast to the available hardware, changing the following settings:

For each product:

Select which products will or not be processed.

Parallel processing: Select in which process each product will be processed.

The region we want to create the plot.

Select the plot resolution.

Select the plot interval (GOES-R)

Use multiple servers to produce the imagery.

```
429      #-----  
430      gl6_band13_sec          = True # GOES-16 L2 CMI - Band 13 - USER SECTOR  
431  
432      gl6_band13_sec_process   = 1  
433      gl6_band13_sec_directory = ingest_dir + 'GOES-R-CMI-Imagery//Band13//'  
434      gl6_band13_sec_identifier = '*L2-CMIPF-M*C13_G16*.nc'  
435      gl6_band13_sec_max_files  = 1  
436      gl6_band13_sec_extent     = [-63.0, -35.0, -35.0, -10.0]  
437      gl6_band13_sec_resolution = 2 # Max Res.: 2 km  
438      gl6_band13_sec_interval  = '00,10,20,30,40,50'  
439      gl6_band13_sec_config    = '_SEC'  
440      gl6_band13_sec_script    = showcast_dir + '//Scripts//process_g1X_bands_sec.py'  
441      gl6_band13_sec_output    = showcast_dir + '//Output//'  
442  
443      products.append('gl6_band13_sec') # Add the product to the list  
444      #-----
```

SHOWCast: Optimization x Hardware

Example 1

Old versions



SHOWCast: Optimization x Hardware

Example 2

Old versions

INTELSAT-21



DVB-S2
Receiver

FAZZT
Client

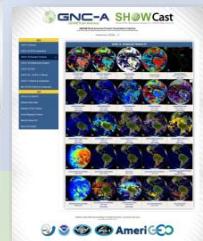
Data
Reception



AWS / UNIDATA
Cloud Module



Data Processing +
Visualization + Storage



SHOWCast: Optimization x Hardware

Example 3

New versions

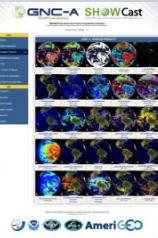
INTELSAT-21



DVB-S2
Receiver

FAZZT
Client

Data
Reception



Processing 1 +
Visualization

AWS / UNIDATA
Cloud Module



Processing 2

```
# SHOWCast visualization directory  
vis_dir = '//192.168.0.11//SHOWCast//HTML//Output//'
```

SHOWCast: Secondary Goals

More than 120 Python script examples

```

1 # Training: Python and GOES-R Imagery: Script 1 - Basic Plot / Extracting Pixel Values
2
3 # Required modules
4 from netCDF4 import Dataset # Read / Write NetCDF files
5 import matplotlib.pyplot as plt # Plotting library
6
7
8 # Open the GOES-R image
9 file = Dataset("OR_ABI-1L2-CMIPF-M6C13_G16_s20191981200396_e20191981210116_c20191981210189.nc")
10
11 # Get the pixel values
12 data = file.variables['CM1'][:]
13
14 # Choose the plot size (width x height, in inches)
15 plt.figure(figsize=(7,7))
16
17 # Plot the image
18 plt.imshow(data, vmin=193, vmax=313, cmap='Greys')
19
20 # Save the image
21 plt.savefig("image_01.png")
22
23 # Show the image
24 plt.show()

```

LIBRARIES

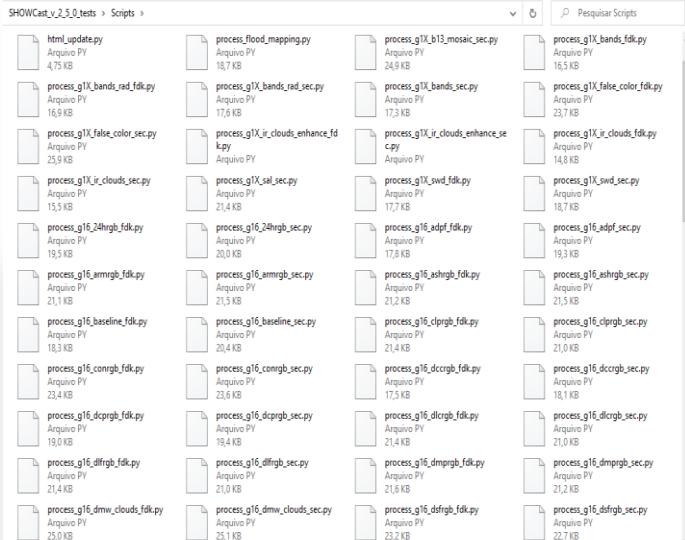
DATA READING AND MANIPULATION

PLOT CONFIGURATION

IMAGE GENERATION

- Encourage users to learn programming so they can process weather / satellite data by providing example scripts and plots for different data sources.

- Provide easy access to data for those without a receiving station.



SHOWCast Cloud Module



SHOWCast: “Cloud” Module (AWS or UNIDATA)

“Cloud” Module Configuration

The image shows three windows of a file explorer interface, likely Windows File Explorer, illustrating the directory structure and configuration files for the SHOWCast Cloud module.

- Left Window:** Shows the root directory `(D:) > SHOWCast_v_2_5_0`. A red arrow points from the top of this window to the top of the middle window.
- Middle Window:** Shows the `Cloud` folder within `SHOWCast_v_2_5_0`. A red arrow points from the top of this window to the top of the right window.
- Right Window:** Shows the `Cloud > Scripts` folder. It contains several files:
 - `tmp` (yellow folder)
 - `grb_unidata_download_config.py` (text file)
 - `grb_unidata_download_start.py` (text file)
 - `pda_aws_download_config.py` (text file)
 - `pda_aws_download_start.py` (text file)A red arrow points from the bottom of this window to the bottom of the middle window.

Configuration and Steps:

1. Set the data you want to download and where you want to save it.
2. Start the Amazon or UNIDATA download.
3. Visualize your data.

If you configure the same directory for the Cloud module and the SHOWCast monitor, you can use SHOWCast without a station.

SHOWCast: “Cloud” Module (AWS or UNIDATA)

Select what you wish to download

```

109 #
110 # ABI L2 BANDS
111 #
112 #
113 # ABI L2 Cloud and Moisture Imagery - CONUS
114 ABI_L2_CMIPC      = False
115 ABI_L2_CMIPC_Product = 'ABI-L2-CMIPC' ← What data sets you would like to download
116 ABI_L2_CMIPC_Channel = ['C01', 'C02', 'C03', 'C04', 'C05', 'C06', 'C07', 'C08', 'C09', 'C10', 'C11', 'C12', 'C13', 'C14', 'C15', 'C16']
117 ABI_L2_CMIPC_Minutes = ['01', '06', '11', '16', '21', '26', '31', '36', '41', '46', '51', '56']
118 ABI_L2_CMIPC_Folders = 'GOES-R-CMIPC-Imagery//'
119
120 # ABI L2 Cloud and Moisture Imagery - FULL DISK
121 ABI_L2_CMIPF      = True
122 ABI_L2_CMIPF_Product = 'ABI-L2-CMIPF' ← What bands would you like to download?
123 ABI_L2_CMIPF_Channel = ['C01', 'C03', 'C04', 'C05', 'C06', 'C07', 'C08', 'C09', 'C10', 'C11', 'C12', 'C13', 'C14', 'C15', 'C16']
124 ABI_L2_CMIPF_Minutes = ['00', '10', '20', '30', '40', '50']
125 ABI_L2_CMIPF_Folders = 'GOES-R-CMT-Imagery//'
126
127 # ABI L2 Cloud and Moisture Imagery - MESOSCALE
128 ABI_L2_CMIPM      = False
129 ABI_L2_CMIPM_Product = 'ABI-L2-CMIPM' ← What interval would you like to download?
130 ABI_L2_CMIPM_Channel = ['C01', 'C02', 'C03', 'C04', 'C05', 'C06', 'C07', 'C08', 'C09', 'C10', 'C11', 'C12', 'C13', 'C14', 'C15', 'C16']
131 ABI_L2_CMIPM_Mesoscl = ['M1', 'M2'] ← What subfolder would you like to store the data?
132 ABI_L2_CMIPM_Minutes = ['01', '02', '03', '04', '05', '06', '07', '08', '09', '10', '11', '12', '13', '14', '15', '16', '17', '18', '19', '20', '21',
133 , '22', '23', '24', '25', '26', '27', '28', '29', '30', '31', '32', '33', '34', '35', '36', '37', '38', '39', '40', '41', '42', '43', '44', '45', '46',
, '47', '48', '49', '50', '51', '52', '53', '54', '55', '56', '57', '58', '59'] ← ABI_L2_CMIPM_Folders = 'GOES-R-CMIPM-Imagery//'

```

For now it is possible to download:

AWS: All GOES-R bands (L1b or L2) [CONUS, MESO y FULL DISK], All Level 2 products [CONUS, MESO y FULL DISK], GLM and S UVI data.

UNIDATA: All GOES-R bands (L1b) [CONUS, MESO y FULL DISK]

SHOWCast: “Cloud” Module (AWS or UNIDATA)

Starting the “Cloud” module:

(D:) > SHOWCast_v_2_5_0 > Cloud >

Nome

Apps

Logs

Scripts

grb_unidata_download_start_linux.sh

grb_unidata_download_start_windows

pda_aws_download_start_linux.sh

pda_aws_download_start_windows

SHOWCast_Cloud

SHOWCast_Cloud_SEC

Cloud Download Start

Cloud download will be executed.
Activating the showcast env:
D:\SHOWCast_v_2_5_0\Miniconda3\condabin\conda activate showcast

Calling cloud_download_config.py
D:\SHOWCast_v_2_5_0\Miniconda3\envs\showcast\python.exe D:\SHOWCast_v_2_5_0\Cloud\Scripts\pda_aws_download_start.py

----- Calling Monitor Script -----

D:\SHOWCast_v_2_5_0//Miniconda3//envs//showcast//python D:\SHOWCast_v_2_5_0//Cloud//Scripts//pda_aws_download_config.py
Script started.

GOES-R Big Data Python / Rclone Downloader: Current Data

Current year, julian day and hour based on your local machine:
YEAR: 2021
JULIAN DAY (UTC): 287
HOUR (UTC): 00

“Cloud” module in action:

(D:) > SHOWCast_v_2_5_0 > Cloud > Scripts > tmp

Nome

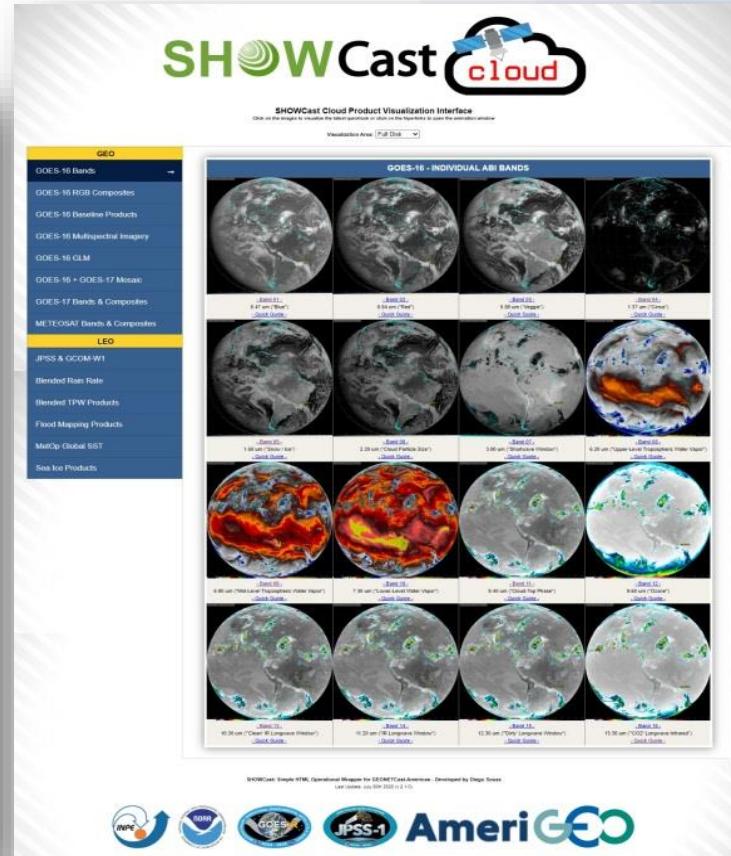
During the download, the data is stored in a "tmp" folder

OR_ABI-L2-CMIPF-M6C03_G16_s20212850000205_e20212850009513_c20212850009587.nc

SHOWCast: “Cloud” Module (AWS or UNIDATA)

When the download is complete, the files are moved to the configured directory, and the file can be processed and viewed.

(C) > VLAB > Cloud > GOES-R-CMI-Imagery > Band03



SHOWCast: Version 2.5.1

GNC-A SHOWCast
GEONETCast-Americas
Simple HTML Operational Wrapper for GEONETCast-Americas

Click on the images to visualize the event products or click on the hyperlinks to open the product archive
Presentation Area | Full Data

GEOSTATIONARY SATELLITES

- GOES-16 Bands
- GOES-16 RGB Composites
- GOES-16 Data Products
- GOES-16 Multispectral Imagery
- GOES-16 GLM
- GOES-16 - GOES-17 Mosaic
- GOES-17 Bands & Composites
- METEOSAT Bands & Composites

POLAR SATELLITES

- OCOM-W1 AMSR2
- NUGAPS Soundings
- Blended Rain Rate
- Blended TPW Products
- Blended Ozone
- CIRA ALPW
- Flood Mapping Products
- SST, SST Anomaly and SST Trend
- Chlorophyll Concentration
- Sea Ice Products
- Vegetation
- Fire - Hot Spots

NWP FORECAST

- GFS 5.0°
- Forecast Charts

NWS ICS

WEATHER ANALYSIS

- Tropical Weather Disc. (N. Atlantic)
- Tropical Weather Disc. (E. Pacific)

SYNOPTIC

- Drifting Buoys

AVIATION

- METAR
- SPC4
- TAF
- SIGMETs
- ARMTs
- Volcanic Ash

WARNING

- Tsunami
- Volcanic Ash

SHOWCast: Simple HTML Operational Wrapper for GEONETCast-Americas. Developed by Diego Souza
Last Update: October 10th, 2021 14:00 UTC

AmeriGEO

GNC-A SHOWCast
GEONETCast-Americas
Simple HTML Operational Wrapper for GEONETCast-Americas

Click on the images to visualize the event products or click on the hyperlinks to open the product archive
Presentation Area | Full Data

GEOSTATIONARY SATELLITES

- GOES-16 Bands
- GOES-16 RGB Composites
- GOES-16 Data Products
- GOES-16 Multispectral Imagery
- GOES-16 GLM
- GOES-16 - GOES-17 Mosaic
- GOES-17 Bands & Composites
- METEOSAT Bands & Composites

POLAR SATELLITES

- OCOM-W1 AMSR2
- NUGAPS Soundings
- Blended Rain Rate
- Blended TPW Products
- Blended Ozone
- CIRA ALPW
- Flood Mapping Products
- SST, SST Anomaly and SST Trend
- Chlorophyll Concentration
- Sea Ice Products
- Vegetation
- Fire - Hot Spots

NWP FORECAST

- GFS 5.0°
- Forecast Charts

NWS ICS

WEATHER ANALYSIS

- Tropical Weather Disc. (N. Atlantic)
- Tropical Weather Disc. (E. Pacific)

SYNOPTIC

- Drifting Buoys

AVIATION

- METAR
- SPC4
- TAF
- SIGMETs
- ARMTs
- Volcanic Ash

WARNINGS

- Tsunami
- Volcanic Ash

SHOWCast: Simple HTML Operational Wrapper for GEONETCast-Americas. Developed by Diego Souza
Last Update: October 10th, 2021 14:00 UTC

AmeriGEO

GNC-A SHOWCast
GEONETCast-Americas
Simple HTML Operational Wrapper for GEONETCast-Americas

Click on the images to visualize the event products or click on the hyperlinks to open the product archive
Presentation Area | Full Data

GEOSTATIONARY SATELLITES

- GOES-16 Bands
- GOES-16 RGB Composites
- GOES-16 Data Products
- GOES-16 Multispectral Imagery
- GOES-16 GLM
- GOES-16 - GOES-17 Mosaic
- GOES-17 Bands & Composites
- METEOSAT Bands & Composites

POLAR SATELLITES

- OCOM-W1 AMSR2
- NUGAPS Soundings
- Blended Rain Rate
- Blended TPW Products
- Blended Ozone
- CIRA ALPW
- Flood Mapping Products
- SST, SST Anomaly and SST Trend
- Chlorophyll Concentration
- Sea Ice Products
- Vegetation
- Fire - Hot Spots

JPSS VIIRS VEGETATION PRODUCTS

JPSS VIIRS Vegetation Products at 1 km resolution (from 2010-2019).
JPSS VIIRS Enhanced Vegetation Index (EVI) at 1 km resolution (from 2010-2019).

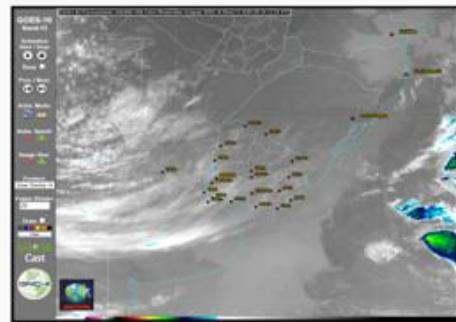
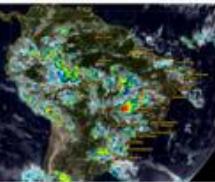
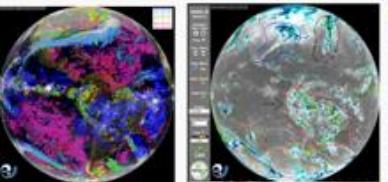
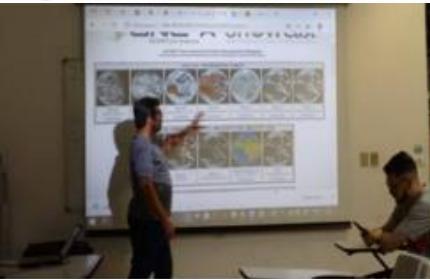
OFR PWCPFH

- Animation
- Full Screen
- Keep
- Print Screen
- Anim. Mode:
- Anim. Speed:
- Image Size:
- Product:
- Draw:
- Frame Shown:
- Save
- Cast

SHOWCast: Simple HTML Operational Wrapper for GEONETCast-Americas. Developed by Diego Souza
Last Update: October 10th, 2021 14:00 UTC

WebP image format support: Reduced file sizes by 30~80%

SHOWCast: Version History



SHOWCast version history:

- V 1.0 (Nov 06 2019): Initial version (57 products)
- V 1.1 (Nov 14 2019): New products
- V 1.2 (Nov 27 2019): Region y resolution
- V 1.3 (Jan 20 2020): Logos, Labels, Annotations and Legends
- V 1.4 (Feb 04 2020): New products
- V 2.0 (Jul 8 2020): New interface, easier installation, new products
- V 2.1 (Jul 30 2020): "Cloud" module
- V 2.2 (Nov 23 2020): Parallel Processing / New products (121 products)
- V 2.3 (Mar 23 2021): 20 s GLM, GFS, ISCS, Ozone, (+140 products)
- V 2.4 (Jul 1 2021): ALPW, SST, SST-A, SST-T, OC, (+150 products)
- V 2.5 (Oct 8 2021): 16 Bands, RGB's, WebP, Intervals
- V 2.5.1 (Oct 19 2021): Some corrections

- It is simple
- It works with GNC-A, GRB, Cloud (AWS, OCC, UNIDATA, etc.) or any data reception mechanism that has the same files that it is configured to process.
- It's just a matter of configuring where your ingest directory is.
- Relatively easy to start. It can be used as a starting point for your own processing scheme.

CONS

- For some users it may be too simple.
- Given the simplicity of the current architecture, it is not easy to add more powerful features.
- Development is limited (best effort basis).
- Scripts can be optimized.

GEONETCast-Americas Training for the Eastern Caribbean States

Day 6 - May 15th

Session 3:

Introduction to SHOWCast

THANK YOU! QUESTIONS?



Diego Souza
diego.souza@inpe.br

DISSM - Meteorological Satellites and Sensors' Division
CGCT - General Coordination of Earth Sciences
INPE - National Institute for Space Research

This is made possible by the generous support of the American people through the United States Agency for International Development (USAID)

