

Integration of Land SAF Products in the TMet Software Package

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TMet Software Package

- TMet is an in-house developed software package aiming to perform the processing, post-processing and visualization of some essential remote sensing data and products.
- Consists of two software:
 - TMetPro  Processing & Post-Processing
 - TMetVis  Visualization

TMet Software Package

- Written in C++ and using QT framework
- Lightweight in terms of CPU and RAM usage
- Cross-platform compatible. (windows + Linux)
- Expandable for new data sources.

TMet Software Package

MSG (Geo - HRIT)

MSG RSS (Geo - HRIT)

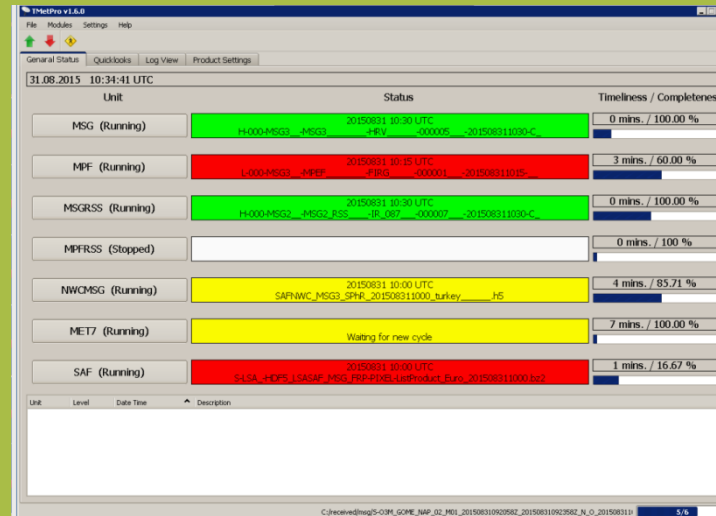
MPEF (Geo, Plate
CAree - GRIB)

MTP (Geo & HRIT)

NWCSAF (Geo &
HDF5)

LandSAF (Geo &
HDF5)

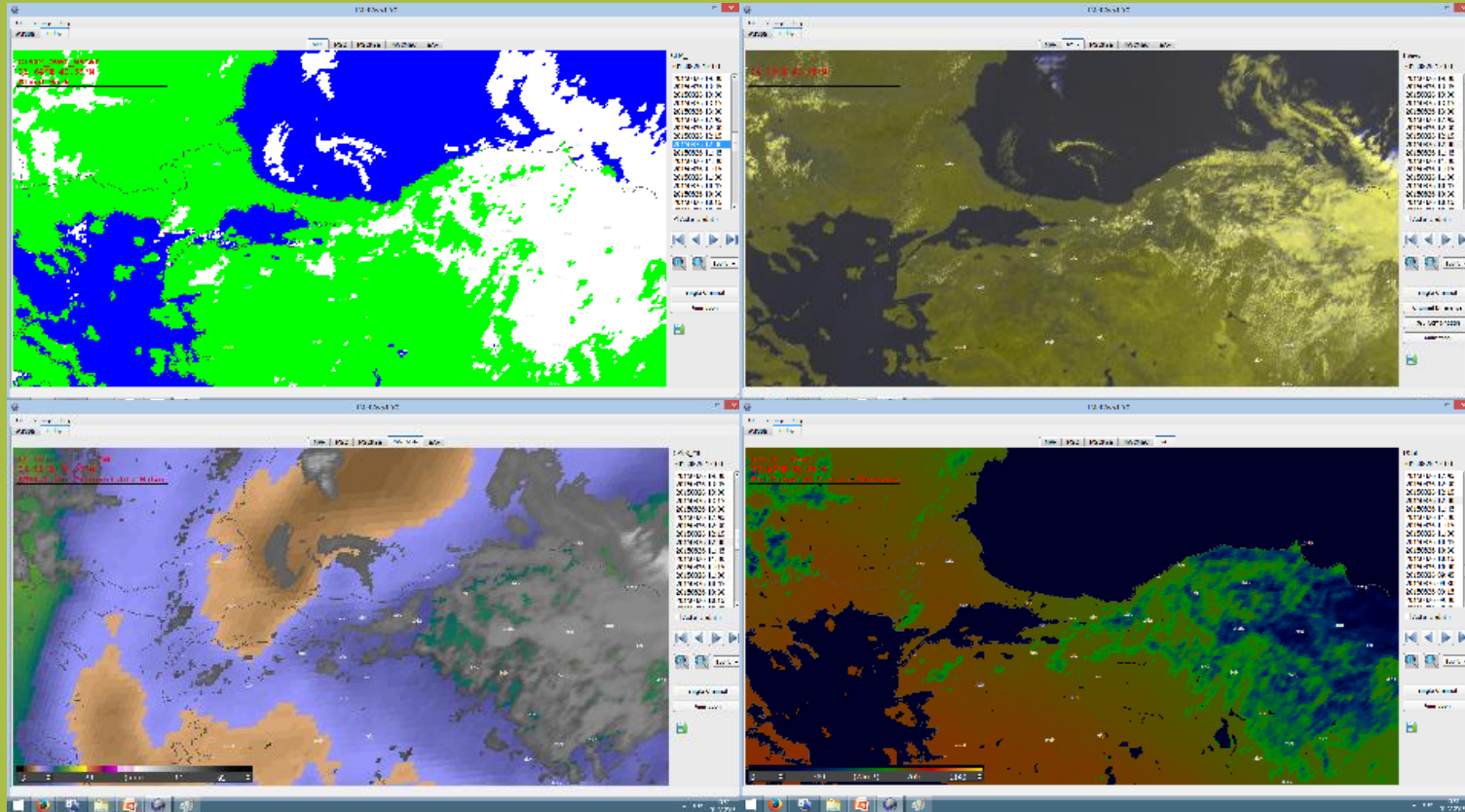
TMetPro



Standardized HDF5
files in used
selected Area &
Map Projection

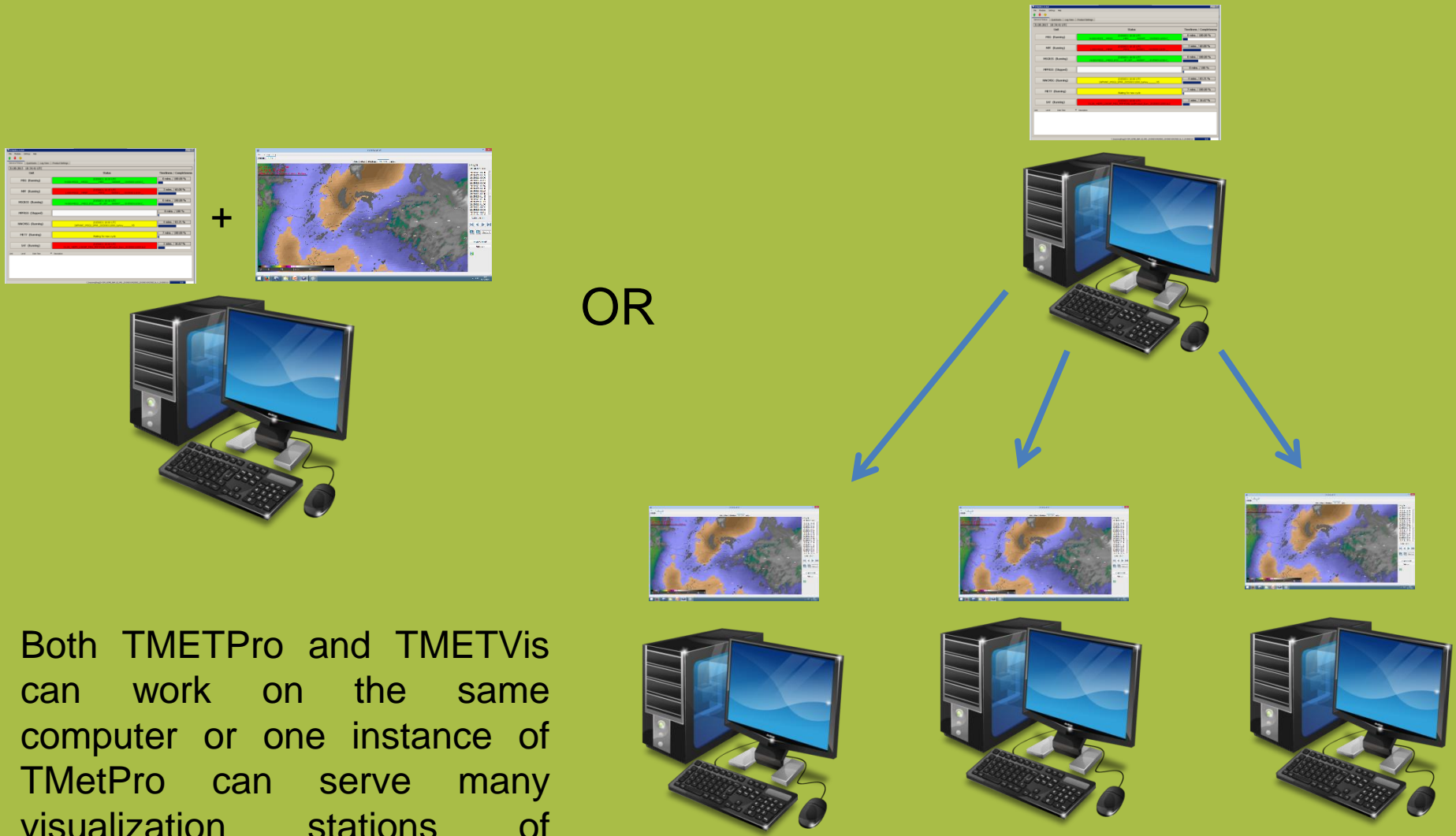
TMet Software Package

Standardized
HDF5 files in
used selected
Area & Map
Projection



Spatially and timely synchronous display of different products in TMetVis.

TMet Software Package



Both TMETPro and TMETVis can work on the same computer or one instance of TMetPro can serve many visualization stations of TMetVis

TMet Software Package

The screenshot shows the TMet software interface. On the left, there is a vertical list of variables including SAL_CLEARSKY, SAL_CLOUDY, SAL_RAD_RAN, SPhR_BL, SPhR_CAPE, SPhR_DIFFBL, SPhR_DIFFHL, SPhR_DIFFFKI, SPhR_DIFFLI, SPhR_DIFFML, SPhR_DIFFSHW, SPhR_DIFFTPW, SPhR_HL, SPhR_KI, SPhR_LI, SPhR_ML, SPhR_QUALITY, SPhR_SFLAG, SPhR_SHW, SPhR_TPW, Slot_Info, TMet_Info, TPW, TPW_CLEARSKY, TPW_CLOUDY, and TPW_RAD_RAN. The central window displays a table with the following data:

	Name	Value
0	ProductName	NWCMSG_Turkiye
1	MasterArea	Turkiye
2	Unit	NWCMSG
3	IsRSS	false
4	ProductTime	201526080445
5	ProcessingTime	26/08/2015 06:59:59 UTC
6	proj4_String	+proj=merc +ellps=WGS84 +lon_0=35,00 +lat_0=39,00 +units=km
7	center_lon	35.0000
8	center_lat	39.0000
9	x_resolution(km)	1.7000
10	y_resolution(km)	1.7000
11	column_count	1600
12	row_count	900
13	CMA_Description	Cloud Mask (PGE01)
14	CMA_unit	enumeration
15	CMA_slope	1.0
16	CMA_offset	0.0
17	CMA_DUST_Description	Dust Clouds Mask (PGE01)
18	CMA_DUST_unit	enumeration
19	CMA_DUST_slope	1.0
20	CMA_DUST_offset	0.0
21	CMA_VOLCANIC_Descri...	Volcanic Plumes Mask (PGE01)
22	CMA_VOLCANIC_unit	enumeration
23	CMA_VOLCANIC_slope	1.0
24	CMA_VOLCANIC_offset	0.0
25	CT_Description	Cloud Type (PGE02)
26	CT_unit	enumeration
27	CT_slope	1.0
28	CT_offset	0.0
29	CTTH_EFFECT_Descript...	Effective Cloudiness (PGE03)
30	CTTH_EFFECT_unit	%
31	CTTH_EFFECT_slope	5.0
32	CTTH_EFFECT_offset	-50.0
33	CTTH_HEIGHT_Descrip...	Cloud Top Height (PGE01)

The screenshot shows a TableViewer window titled "TableViewer - TMet_Info - / - D:\TMet_Products\Turkiye\SAF\SAF_Turkiye_201508260330.h5". The table displayed is:

	Name	Value
0	ProductName	
1	MasterArea	Turkiye
2	Unit	SAF
3	IsRSS	false
4	ProductTime	201526080330
5	ProcessingTime	28/08/2015 18:43:51 UTC
6	proj4_String	+proj=merc +ellps=WGS84 +lon_0=35,00 +lat_0=39,00 +units=km
7	center_lon	35.0000
8	center_lat	39.0000
9	x_resolution(km)	1.7000
10	y_resolution(km)	1.7000
11	column_count	1600
12	row_count	900
13	AL-C1-SP-BH_Description	C1 Albedo Spectral Bi-Hemispherical
14	AL-C1-SP-BH_unit	%
15	AL-C1-SP-BH_slope	0.0001
16	AL-C1-SP-BH_offset	0.0
17	AL-C1-SP-DH_Description	C1 Albedo Spectral Directional-Hemispherical
18	AL-C1-SP-DH_unit	%
19	AL-C1-SP-DH_slope	0.0001
20	AL-C1-SP-DH_offset	0.0
21	AL-C2-SP-BH_Description	C2 Albedo Spectral Bi-Hemispherical
22	AL-C2-SP-BH_unit	%
23	AL-C2-SP-BH_slope	0.0001
24	AL-C2-SP-BH_offset	0.0
25	AL-C2-SP-DH_Description	C2 Albedo Spectral Directional-Hemispherical
26	AL-C2-SP-DH_unit	%
27	AL-C2-SP-DH_slope	0.0001
28	AL-C2-SP-DH_offset	0.0
29	AL-C3-SP-BH_Description	C3 Albedo Spectral Bi-Hemispherical
30	AL-C3-SP-BH_unit	%
31	AL-C3-SP-BH_slope	0.0001
32	AL-C3-SP-BH_offset	0.0

Critical metadata is written to the HDF5 files in a standardized manner.

TMet Software Package

The screenshot displays the TMet software interface with two data tables. The left table contains satellite and channel parameters, while the right table contains channel-specific parameters.

ID	Name	Value
0	SatelliteId	Meteosat10
1	NominalLongitude	0.0000
2	SatelliteStatus	operational
3	LastManouvreFlag	false
4	LastManouvreType	Spin Up
5	LastManouvreStart	01/01/1958 00:00.00 UTC
6	LastManouvreEnd	01/01/1958 00:00.00 UTC
7	NextManouvreFlag	false
8	NextManouvreType	Spin Up
9	NextManouvreStart	01/01/1958 00:00.00 UTC
10	NextManouvreEnd	01/01/1958 00:00.00 UTC
11	LastGainChangeFlag	false
12	LastGainChangeTime	01/01/1958 00:00.00 UTC
13	Decontamination	false
14	DecontaminationStart	02/12/2014 09:47.59 UT
15	DecontaminationEnd	05/12/2014 12:13.19 UT
16	TypeOfEclipse	None
17	EclipseStart	01/01/1958 00:00.00 UT
18	EclipseEnd	01/01/1958 00:00.00 UT
19	VisibleBodies	None
20	BodiesCloseToFOV	None
21	ImpactOnImageQuality	None
22	ProjectionType	Geostationary
23	ProjectionLongitude	0.0000
24	PlannedNumberOfLinesVISIR	3712
25	PlannedNumberOfColumnsVISIR	3712
26	PlannedSouthVISIRLine	1
27	PlannedNorthVISIRLine	3712
28	PlannedEastVISIRLine	1
29	PlannedWestVISIRLine	3712
30	PlannedNumberOfLinesHRV	11136
31	PlannedNumberOfColumnsHRV	11136
32	PlannedLowerSouthHRVLine	1

ID	Name	Value
49	Channel_9_offset	-10.4568
50	Channel_10_offset	-11.3379
51	Channel_11_offset	-8.03795
52	Channel_12_offset	-1.90724
53	Channel_1_slope	0.0208876
54	Channel_2_slope	0.0278805
55	Channel_3_slope	0.0235881
56	Channel_4_slope	0.00365867
57	Channel_5_slope	0.00831811
58	Channel_6_slope	0.038622
59	Channel_7_slope	0.126744
60	Channel_8_slope	0.103961
61	Channel_9_slope	0.205036
62	Channel_10_slope	0.222311
63	Channel_11_slope	0.157607
64	Channel_12_slope	0.0373969
65	NominalImageScanning	true
66	ReducedScan	false
67	NominalBehaviour	true
68	ForwardScanStartTime	26/08/2015 02:15.09 UTC
69	ForwardScanEndTime	26/08/2015 02:27.40 UTC
70	ActualSouthVISIRLine	1
71	ActualNorthVISIRLine	3712
72	ActualEastVISIRLine	1
73	ActualWestVISIRLine	3712
74	ActualLowerSouthHRVLine	1
75	ActualLowerNorthHRVLine	8192
76	ActualLowerEastHRVLine	1
77	ActualLowerWestHRVLine	5568
78	ActualUpperSouthHRVLine	8193
79	ActualUpperNorthHRVLine	11136
80	ActualUpperEastHRVLine	1902
81	ActualUpperWestHRVLine	7469

Relevant header information of input data is also written to the HDF5 files.

Integration Process

Most of the LandSAF Meteosat Products are tried to be included in the TMet software package :

- Albedo Products (C1, C2, C3, Broadband)
- DSLF
- DSSF
- ET
- FAPAR
- FDeM
- Fire Risk Maps (24,48,72 Hours)
- FRP
- FVC
- LAI
- LST
- SC2

Integration Process

- FDeM and FRP Products which are processed and visualized pixel-wise needs to be processed and visualized as point-wise.
- Additional information in FRP product needs to be displayed all together.
- Quality Flags and Error Estimations of relevant parameters will be added.
- Only the Euro Region is currently processed.
- Late reception of some products, such as ET, Fire Risk Maps.
- Implementation of MetOp products ? (NDVI, LST ??, DSLF ??)

Thanks...