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production_environment	<i>possible values are OE, ITE, and DE.</i>	string
production_data_source	<i>possible values are Realtime, Simulated, Playback, and Test.</i>	string
timeline_id	<i>possible values are ABI Mode 3, ABI Mode 4 and ABI Mode 6.</i>	string
scene_id	<i>possible values are Full Disk, CONUS, and Mesoscale.</i>	string
spatial_resolution	2km at nadir	string
time_coverage_start	<i>format is YYYY-MM-DD"T"HH:MM:SS.s"Z".</i>	string
time_coverage_end	<i>format is YYYY-MM-DD"T"HH:MM:SS.s"Z".</i>	string

Table 5.9.6-2 Aerosol Detection: Variables

Variable			Attribute		
Name	Type	Shape	Name	Value	Type
y	short	<i>y = see note [1]</i>	long_name	GOES-R fixed grid projection y-coordinate	string
			standard_name	projection_y_coordinate	string
			scale_factor	<i>see note [1]</i>	float
			add_offset	<i>see note [1]</i>	float
			units	rad	string
			axis	Y	string
x	short	<i>x = see note [1]</i>	long_name	GOES-R fixed grid projection x-coordinate	string
			standard_name	projection_x_coordinate	string
			scale_factor	<i>see note [1]</i>	float
			add_offset	<i>see note [1]</i>	float
			units	rad	string
			axis	X	string
t	double	n/a	long_name	J2000 epoch mid-point between the start and end image scan in seconds since 2000-01-01 12:00:00	string
			standard_name	time	string
			units	seconds since 2000-01-01 12:00:00	string
			axis	T	string
			bounds	time_bounds	string
time_bounds	double	number_of_time_bounds = 2	long_name	scan start and end times in seconds since epoch (2000-01-01 12:00:00)	string
retrieval_local_zenith_angle <i>value = 90.0</i>	float	n/a	long_name	threshold angle between the line of sight to the satellite and the local zenith at the observation target for good or degraded quality aerosol detection data production	string
			standard_name	platform_zenith_angle	string
			units	degree	string
			bounds	retrieval_local_zenith_angle_bounds	string

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Variable			Attribute		
Name	Type	Shape	Name	Value	Type
quantitative_local_zenith_angle <i>value = 60.0</i>	float	n/a	long_name	threshold angle between the line of sight to the satellite and the local zenith at the observation target for good quality aerosol detection data production	string
			standard_name	platform_zenith_angle	string
			units	degree	string
			bounds	quantitative_local_zenith_angle_bounds	string
retrieval_local_zenith_angle_bounds <i>value = 0.0</i> <i>90.0</i>	float	number_of_LZA_bounds = 2	long_name	local zenith angle degree range where good or degraded quality aerosol detection data is produced	string
quantitative_local_zenith_angle_bounds <i>value = 0.0</i> <i>60.0</i>	float	number_of_LZA_bounds = 2	long_name	local zenith angle degree range where good quality aerosol detection data is produced	string
retrieval_solar_zenith_angle <i>value = 87.0</i>	float	n/a	long_name	threshold angle between the line of sight to the sun and the local zenith at the observation target for good or degraded quality aerosol detection data production	string
			standard_name	solar_zenith_angle	string
			units	degree	string
			bounds	retrieval_solar_zenith_angle_bounds	string
quantitative_solar_zenith_angle <i>value = 60.0</i>	float	n/a	long_name	threshold angle between the line of sight to the sun and the local zenith at the observation target for good quality aerosol detection data production	string
			standard_name	solar_zenith_angle	string
			units	degree	string
			bounds	quantitative_solar_zenith_angle_bounds	string
retrieval_solar_zenith_angle_bounds <i>value = 0.0</i> <i>87.0</i>	float	number_of_SZA_bounds = 2	long_name	solar zenith angle degree range where good or degraded quality aerosol detection data is produced	string
	float		long_name		string

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Variable			Attribute		
Name	Type	Shape	Name	Value	Type
quantitative_solar_zenith_angle_bounds value = 0.0 60.0		number_of_SZA_bounds = 2		solar zenith angle degree range where good quality aerosol detection data is produced	
y_image value = <i>see note [1]</i>	float	n/a	long_name	GOES-R fixed grid projection y-coordinate center of image	string
			standard_name	projection_y_coordinate	string
			units	rad	string
			axis	Y	string
			bounds	y_image_bounds	string
y_image_bounds	float	number_of_image_bounds = 2	long_name	GOES-R fixed grid projection y-coordinate north/south extent of image	string
x_image value = <i>see note [1]</i>	float	n/a	long_name	GOES-R fixed grid projection x-coordinate center of image	string
			standard_name	projection_x_coordinate	string
			units	rad	string
			axis	X	string
			bounds	x_image_bounds	string
x_image_bounds	float	number_of_image_bounds = 2	long_name	GOES-R fixed grid projection x-coordinate west/east extent of image	string
goes_imager_projection	int	n/a	long_name	GOES-R ABI fixed grid projection	string
			grid_mapping_name	geostationary	string
			perspective_point_height	35786023	double
			semi_major_axis	6378137	double
			semi_minor_axis	6356752.314	double
			inverse_flattening	298.2572221	double
			latitude_of_projection_origin	0	double
			longitude_of_projection_origin	<i>see note [1]</i>	double
sweep_angle_axis	x	string			
Aerosol	byte	y = <i>see note [1]</i> x = <i>see note [1]</i>	long_name	ABI L2+ Aerosol Detection: Aerosol	string
			standard_name	aerosol_binary_mask	string

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Variable			Attribute		
Name	Type	Shape	Name	Value	Type
			_Unsigned	TRUE	string
			_FillValue	255	byte
			valid_range	0 1	byte
			units	1	string
			resolution	y: 0.000056 rad x: 0.000056 rad	string
			coordinates	retrieval_local_zenith_angle quantitative_local_zenith_angle retrieval_solar_zenith_angle quantitative_solar_zenith_angle t y x	string
			grid_mapping	goes_imager_projection	string
			cell_methods	retrieval_local_zenith_angle: point (good or degraded quality pixel produced) quantitative_local_zenith_angle: point (good quality pixel produced) retrieval_solar_zenith_angle: point (good or degraded quality pixel produced) quantitative_solar_zenith_angle: point (good quality pixel produced) t: point area: point	string
			flag_values	<i>see note [flags and meanings]</i>	byte
			flag_meanings	<i>see note [flags and meanings]</i>	string
			ancillary_variables	DQF	string
Smoke	byte	y = <i>see note [1]</i> x = <i>see note [1]</i>	long_name	ABI L2+ Aerosol Detection: Smoke	string
			standard_name	smoke_binary_mask	string
			_Unsigned	TRUE	string
			_FillValue	255	byte
			valid_range	0 1	byte
			units	1	string
			resolution	y: 0.000056 rad x: 0.000056 rad	string
			coordinates	retrieval_local_zenith_angle quantitative_local_zenith_angle retrieval_solar_zenith_angle quantitative_solar_zenith_angle t y x	string
			grid_mapping	goes_imager_projection	string
			cell_methods	retrieval_local_zenith_angle: point (good or degraded quality pixel produced) quantitative_local_zenith_angle: point (good quality pixel produced) retrieval_solar_zenith_angle: point (good or degraded quality pixel produced) quantitative_solar_zenith_angle: point (good quality pixel produced) t: point area: point	string
			flag_values	<i>see note [flags and meanings]</i>	byte
			flag_meanings	<i>see note [flags and meanings]</i>	string
			ancillary_variables	DQF	string
Dust	byte	y = <i>see note [1]</i> x = <i>see note [1]</i>	long_name	ABI L2+ Aerosol Detection: Dust	string
			standard_name	dust_binary_mask	string
			_Unsigned	TRUE	string

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Variable			Attribute		
Name	Type	Shape	Name	Value	Type
			_FillValue	255	byte
			valid_range	0 1	byte
			units	1	string
			resolution	y: 0.000056 rad x: 0.000056 rad	string
			coordinates	retrieval_local_zenith_angle quantitative_local_zenith_angle retrieval_solar_zenith_angle quantitative_solar_zenith_angle t y x	string
			grid_mapping	goes_imager_projection	string
			cell_methods	retrieval_local_zenith_angle: point (good or degraded quality pixel produced) quantitative_local_zenith_angle: point (good quality pixel produced) retrieval_solar_zenith_angle: point (good or degraded quality pixel produced) quantitative_solar_zenith_angle: point (good quality pixel produced) t: point area: point	string
			flag_values	<i>see note [flags and meanings]</i>	byte
			flag_meanings	<i>see note [flags and meanings]</i>	string
			ancillary_variables	DQF	string
DQF	byte	y = <i>see note [1]</i> x = <i>see note [1]</i>	long_name	ABI L2+ Aerosol Detection data quality flags	string
			standard_name	status_flag	string
			_Unsigned	TRUE	string
			_FillValue	255	byte
			valid_range	0 60	byte
			units	1	string
			coordinates	retrieval_local_zenith_angle retrieval_solar_zenith_angle t y x	string
			grid_mapping	goes_imager_projection	string
			cell_methods	retrieval_local_zenith_angle: point retrieval_solar_zenith_angle: point t: point area: point	string
			flag_masks	<i>see note [flags and meanings]</i>	byte
			flag_values	<i>see note [flags and meanings]</i>	byte
			flag_meanings	<i>see note [flags and meanings]</i>	string
			number_of_smoke_detection_qf_values	2	byte
			percent_good_smoke_detection_retrieval_qf	<i>dynamic value</i>	float
			percent_invalid_smoke_detection_due_to_snow_ice_clouds_or_bad_source_data_qf	<i>dynamic value</i>	float

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Variable			Attribute					
Name	Type	Shape	Name	Value	Type			
			number_of_dust_detection_qf_values	2	byte			
			percent_good_dust_detection_retrieval_qf	<i>dynamic value</i>	float			
			percent_invalid_dust_detection_due_to_snow_ice_clouds_or_bad_source_data_qf	<i>dynamic value</i>	float			
			number_of_smoke_confidence_qf_values	3	byte			
			percent_low_confidence_smoke_detection_qf	<i>dynamic value</i>	float			
			percent_medium_confidence_smoke_detection_qf	<i>dynamic value</i>	float			
			percent_high_confidence_smoke_detection_qf	<i>dynamic value</i>	float			
			number_of_dust_confidence_qf_values	3	byte			
			percent_low_confidence_dust_detection_qf	<i>dynamic value</i>	float			
			percent_medium_confidence_dust_detection_qf	<i>dynamic value</i>	float			
			percent_high_confidence_dust_detection_qf	<i>dynamic value</i>	float			
			number_good_LZA_pixels	int	n/a	long_name	number of pixels that do not exceed LZA threshold	string
						_FillValue	-1	int
units	count	string						
coordinates	quantitative_local_zenith_angle retrieval_solar_zenith_angle t y_image x_image	string						
grid_mapping	goes_imager_projection	string						
cell_methods	quantitative_local_zenith_angle: sum retrieval_solar_zenith_angle: sum t: sum area: sum (interval: 0.000056 rad comment: geolocated/not missing pixels only)	string						

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Variable			Attribute		
Name	Type	Shape	Name	Value	Type
number_good_SZA_pixels	int	n/a	long_name	number of pixels that do not exceed SZA threshold	string
			_FillValue	-1	int
			units	count	string
			coordinates	retrieval_local_zenith_angle quantitative_solar_zenith_angle t y_image x_image	string
			grid_mapping	goes_imager_projection	string
			cell_methods	retrieval_local_zenith_angle: sum quantitative_solar_zenith_angle: sum t: sum area: sum (interval: 0.000056 rad comment: geolocated/not missing pixels only)	string
number_of_good_smoke_retrievals	int	n/a	long_name	number of smoke retrievals where smoke may or may not exist	string
			_FillValue	-1	int
			units	count	string
			coordinates	retrieval_local_zenith_angle retrieval_solar_zenith_angle t y_image x_image	string
			grid_mapping	goes_imager_projection	string
			cell_methods	retrieval_local_zenith_angle: sum retrieval_solar_zenith_angle: sum t: sum area: sum (interval: 0.000056 rad comment: good smoke detection retrieval pixels only)	string
number_of_good_dust_retrievals	int	n/a	long_name	number of dust retrievals where dust may or may not exist	string
			_FillValue	-1	int
			units	count	string
			coordinates	retrieval_local_zenith_angle retrieval_solar_zenith_angle t y_image x_image	string
			grid_mapping	goes_imager_projection	string
			cell_methods	retrieval_local_zenith_angle: sum retrieval_solar_zenith_angle: sum t: sum area: sum (interval: 0.000056 rad comment: good dust detection retrieval pixels only)	string
number_of_good_retrievals_where_smoke_detected	int	n/a	long_name	number of retrievals where smoke is detected	string
			_FillValue	-1	int
			units	count	string
			coordinates	retrieval_local_zenith_angle retrieval_solar_zenith_angle t y_image x_image	string
			grid_mapping	goes_imager_projection	string
			cell_methods	retrieval_local_zenith_angle: sum retrieval_solar_zenith_angle: sum t: sum area: sum (interval: 0.000056 rad comment: good smoke detection retrieval pixels only) where smoke	string
	int	n/a	long_name	number of retrievals where dust is detected	string

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Variable			Attribute		
Name	Type	Shape	Name	Value	Type
number_of_good_retrievals_where_dust_detected			_FillValue	-1	int
			units	count	string
			coordinates	retrieval_local_zenith_angle retrieval_solar_zenith_angle t y_image x_image	string
			grid_mapping	goes_imager_projection	string
			cell_methods	retrieval_local_zenith_angle: sum retrieval_solar_zenith_angle: sum t: sum area: sum (interval: 0.000056 rad comment: good dust detection retrieval pixels only) where dust_aerosol	string
percent_uncorrectable_GRB_errors	float	n/a	long_name	percent data lost due to uncorrectable GRB errors	string
			_FillValue	-999.0	float
			valid_range	0.0 1.0	float
			units	percent	string
			coordinates	t y_image x_image	string
			grid_mapping	goes_imager_projection	string
percent_uncorrectable_L0_errors	float	n/a	long_name	percent data lost due to uncorrectable L0 errors	string
			_FillValue	-999.0	float
			valid_range	0.0 1.0	float
			units	percent	string
			coordinates	t y_image x_image	string
			grid_mapping	goes_imager_projection	string
nominal_satellite_subpoint_latitude_value = 0.00	float	n/a	long_name	nominal satellite subpoint latitude (platform latitude)	string
			standard_name	latitude	string
			_FillValue	-999.0	float
			units	degrees_north	string
			coordinates	t y_image x_image	string
			grid_mapping	goes_imager_projection	string
nominal_satellite_subpoint_longitude_value = <i>see note [1]</i>	float	n/a	long_name	nominal satellite subpoint longitude (platform longitude)	string
			standard_name	longitude	string
			_FillValue	-999.0	float
			units	degrees_east	string
			coordinates	t y_image x_image	string
			grid_mapping	goes_imager_projection	string
nominal_satellite_height_value = 35786.023	float	n/a	long_name	nominal satellite height above GRS 80 ellipsoid (platform altitude)	string
			standard_name	height_above_reference_ellipsoid	string
			_FillValue	-999.0	float
			units	km	string
			coordinates	t y_image x_image	string
			grid_mapping	goes_imager_projection	string
geospatial_latitude_longitude_extent	float	n/a	long_name	geospatial latitude and longitude references	string
			geospatial_westbound_longitude	<i>see note [1]</i>	float

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Variable			Attribute		
Name	Type	Shape	Name	Value	Type
			geospatial_northbound_latitude	<i>see note [1]</i>	float
			geospatial_eastbound_longitude	<i>see note [1]</i>	float
			geospatial_southbound_latitude	<i>see note [1]</i>	float
			geospatial_lat_center	<i>see note [1]</i>	float
			geospatial_lon_center	<i>see note [1]</i>	float
			geospatial_lat_nadir	0	float
			geospatial_lon_nadir	<i>see note [1]</i>	float
			geospatial_lat_units	degrees_north	string
			geospatial_lon_units	degrees_east	string
algorithm_dynamic_input_data_container	int	n/a	long_name	container for filenames of dynamic algorithm input data	string
			input_ABI_L2_auxiliary_solar_zenith_angle_data	<i>refer to filename conventions for L2+ products in Appendix A.</i>	string
			input_ABI_L2_auxiliary_sunglint_angle_data	<i>refer to filename conventions for L2+ products in Appendix A.</i>	string
			input_ABI_L2_auxiliary_sun_satellite_relative_azimuth_angle_data	<i>refer to filename conventions for L2+ products in Appendix A.</i>	string
			input_ABI_L2_brightness_temperature_band_7_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_brightness_temperature_band_13_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_brightness_temperature_band_14_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_brightness_temperature_band_15_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string

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Variable			Attribute		
Name	Type	Shape	Name	Value	Type
			input_ABI_L2_intermediate_product_reflectance_band_1_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_intermediate_product_reflectance_band_2_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_intermediate_product_reflectance_band_3_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_intermediate_product_reflectance_band_4_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_intermediate_product_reflectance_band_5_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_intermediate_product_reflectance_band_6_2km_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_intermediate_product_cloud_mask_info_flag_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_ABI_L2_intermediate_product_binary_snow_mask_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
			input_dynamic_ancillary_global_snow_mask_data	<i>refer to filename conventions for L2+ products in Appendix A of PUG L2+ volume.</i>	string
processing_parm_version_container	int	n/a	long_name	container for processing parameter filenames	string
			L2_processing_parm_version	<i>refer to filename conventions for L2+ Semi-Static parameter filenames in Appendix A.</i>	string
	int	n/a	long_name	container for algorithm package filename and product version	string

Variable			Attribute		
Name	Type	Shape	Name	Value	Type
algorithm_product_version_container			algorithm_version	<i>refer to filename conventions for L2+ algorithm packages in Appendix A.</i>	string
			product_version	<i>format is vVVrRR where VV is major release # and RR is minor revision #.</i>	string

Note 1: Coverage region and horizontal spatial resolution related sizing and extent variable and attribute values are located in paragraph 4.2.6, Product Data Structures, and paragraph 4.2.7, Standard Coordinate Data, in the ABI Fixed Grid section.

Note "flags and meanings": Flag values and meanings are located in paragraph 5.9.6.1, Aerosol Detection Product Flag Values and Meanings.

5.9.6.1 Aerosol Detection Product Flag Values and Meanings

Table 5.9.6.1-1 Aerosol Detection Product Binary Aerosol Mask Flag Values and Meanings

Aerosol (aerosol)	
Flag Value	Flag Meaning
0	aerosols_absent
1	aerosols_present

Table 5.9.6.1-2 Aerosol Detection Product Binary Smoke Mask Flag Values and Meanings

Smoke (smoke)	
Flag Value	Flag Meaning
0	smoke_absent
1	smoke_present

Table 5.9.6.1-3 Aerosol Detection Product Binary Dust Mask Flag Values and Meanings

Dust (dust)	
Flag Value	Flag Meaning
0	dust_absent
1	dust_present

Table 5.9.6.1-4 Aerosol Detection Product Data Quality Flag Values and Meanings

Data Quality Flags (DQF)		
Flag Mask	Flag Value	Flag Meaning
1	0	good_smoke_detection_retrieval_qf
1	1	invalid_smoke_detection_due_to_snow_ice_clouds_or_bad_source_data_qf
2	0	good_dust_detection_retrieval_qf
2	2	invalid_dust_detection_due_to_snow_ice_clouds_or_bad_source_data_qf
12	0	low_confidence_smoke_detection_qf
12	4	medium_confidence_smoke_detection_qf
12	12	high_confidence_smoke_detection_qf
48	0	low_confidence_dust_detection_qf
48	16	medium_confidence_dust_detection_qf
48	48	high_confidence_dust_detection_qf
64	0	out_of_sun_glint_qf
64	64	within_sun_glint_qf
128	0	within_valid_solar_and_satellite_zenith_angle_range_qf
128	128	outside_valid_solar_and_satellite_zenith_angle_range_qf