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# SAFARI 2000 ASTER AND MODIS FIRE DATA COMPARISON, DRY SEASON 2001

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## Summary:

These data relate to a paper (Morissette et al., 2005) that describes the use of high-spatial-resolution ASTER data to determine the accuracy of the moderate resolution MODIS active fire product. Our main objective was to develop a methodology to use ASTER data for quantitative evaluation of the MODIS active fire product and to apply it to fires in Southern Africa during the 2001 burning season. We utilize eighteen ASTER scenes distributed throughout Southern Africa covering the time period August 5, 2001, to October 6, 2001. The MODIS fire product is characterized through the use of logistic regression models to establish a relationship between the binary MODIS fire/no fire product and summary statistics derived from ASTER data over the coincident MODIS pixel. Probabilities of detection are determined as a function of the total number of ASTER fires and Moran's I, a measure of the spatial heterogeneity of fires within the MODIS pixel. The statistical analysis is done for versions 3 and 4 of the MODIS fire detection algorithm. It is shown that the algorithm changes have a positive effect on the fire product accuracy.

More information can be found at: [ [http://daac.ornl.gov/daacdata/safari2k/remote\\_sensing/modis\\_aster\\_fire/comp/read\\_me.txt](http://daac.ornl.gov/daacdata/safari2k/remote_sensing/modis_aster_fire/comp/read_me.txt) ].

## Data Citation:

Cite this data set as follows:

Morissette, J. T., L. Giglio, I. Csiszar, and C. O. Justice. 2004. SAFARI 2000 ASTER and MODIS Fire Data Comparison, Dry Season 2001. Data set. Available on-line [http://www.daac.ornl.gov] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A. doi:10.3334/ORNLDAAC/707.

## References:

Morissette, J. T., L. Giglio, I. Csiszar, and C. O. Justice. 2005. Validation of the MODIS active fire product over Southern Africa with ASTER data. International Journal of Remote Sensing 26: 4239-4264.

## Data Format:

File format for coupled ASTER and MODIS data file used in:  
Morissette et al. (in press)

<b>START of FILE</b>	
line 1	ASTER file name
line 2	MODIS geolocation file name
line 3	MODIS fire product
line 4	Threshold for ASTER band 9, in counts
line 5 through N+5	(where N = the number of MODIS pixel with corresponding ASTER data)
relX	"relX" and "relY" are the pixel coordinates of the MODIS swath data, relative to the subset of MODIS data overlapping the ASTER image such that (0,0) is the upper left MODIS pixel for the overlapping area
relY	
X	"X" and "Y" are the pixel coordinates in MODIS swath image (listed on line 3), with upper left corner pixel (0, 0)
Y	
	X = along scan direction

	Y = along track direction
lat	"lat" and "lon" are latitude and longitude in decimal degrees (Southern latitude is negative, Eastern longitude is positive)
lon	
MODIS	"MODIS" is the MODIS fire classification (more information is at <a href="http://edcdaac.usgs.gov/modis/mod14therm.html">http://edcdaac.usgs.gov/modis/mod14therm.html</a> ) 0: not processed (missing input data) 2: not processed (other reason) 3: water mask (no fire algorithm applied) 4: cloudy (significantly obscured by clouds so that no attempt is made to extract fire information) 5: no fire 6: unknown (information from adjacent pixel is unknown and contextual classifier can not be applied and single pixel information is not conclusive) 7: low-confidence fire 8: nominal-confidence fire 9: high-confidence fire
count	"count" is the number of ASTER fire pixels within corresponding MODIS pixel
Moran	"Moran" is the Moran's I calculation for the ASTER fire data within the corresponding MODIS pixel
variance	"variance" is the variance of ASTER fire data within corresponding MODIS pixel

The files posted here match the data listed in table 1 of the publication.

Scene	ASTER filename	Date	Lat	Lon	Coincident MODIS granule ID
1	pg-PR1B0000-2001081702_091_001	05-Aug	-14.04	27.53	MODxx.A2001217.0840.vvv.*.hdf
2	pg-PR1B0000-2001081702_095_001	05-Aug	-19.39	26.36	MODxx.A2001217.0840.vvv.*.hdf
3	pg-PR1B0000-2001091402_112_001	01-Sep	-12.69	30.48	MODxx.A2001244.0820.vvv.*.hdf
4	pg-PR1B0000-2001091402_031_001	01-Sep	-16.96	29.52	MODxx.A2001244.0820.vvv.*.hdf
5	pg-PR1B0000-2001091602_042_001	04-Sep	-12.98	24.73	MODxx.A2001247.0850.vvv.*.hdf
6	pg-PR1B0000-2001091602_045_001	04-Sep	-15.65	24.15	MODxx.A2001247.0850.vvv.*.hdf
7	pg-PR1B0000-2001092202_069_001	09-Sep	-14.98	18.69	MODxx.A2001252.0910.vvv.*.hdf
8	pg-PR1B0000-2001092202_001_001	09-Sep	-22.46	16.98	MODxx.A2001252.0910.vvv.*.hdf
9	pg-PR1B0000-2001100702_081_001	18-Sep	-18.19	44.26	MODxx.A2001261.0725.vvv.*.hdf
10	pg-PR1B0000-2001101102_017_001	23-Sep	-12.33	16.31	MODxx.A2001266.0920.vvv.*.hdf
11	pg-PR1B0000-2001101302_111_001	28-Sep	-17.17	35.56	MODxx.A2001271.0800.vvv.*.hdf
12	pg-PR1B0000-2001101302_275_001	28-Sep	-13.96	36.26	MODxx.A2001271.0800.vvv.*.hdf
13	pg-PR1B0000-2001101502_039_001	29-Sep	-13.24	24.27	MODxx.A2001272.0845.vvv.*.hdf
14	pg-PR1B0000-2001101502_050_001	29-Sep	-22.31	22.15	MODxx.A2001272.0845.vvv.*.hdf
15	pg-PR1B0000-2001101603_130_001	01-Oct	-11.29	29.14	MODxx.A2001274.0830.vvv.*.hdf
16	pg-PR1B0000-2001101603_155_001	02-Oct	-12.32	17.78	MODxx.A2001275.0915.vvv.*.hdf
17	pg-PR1B0000-2001101603_017_001	02-Oct	-13.92	17.43	MODxx.A2001275.0915.vvv.*.hdf

18	pg-PR1B0000-2001102002_118_001	05-Oct	-26.83	32.13	MODxx.A2001278.0810.vvv.*.hdf
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