

# OASIS00 Variables in merged NCAR/OKMN Netcdf files

All variables shown below have dimension time(1-288) X station(1-20). Stations 1-9 are NCAR stations. 11-19 are Oklahoma Mesonet. NCAR station N is co-located with OKMN station N+10. Stations 10 and 20 are imaginary. A "supersite" is an Oklahoma Mesonet site that does eddy-correlation (i.e. has a sonic anemometer), and has a 4 component radiometer.

All variables are floats except counts\_sync and counts\_sonic, which are integer. The missing data value (known as the \_FillValue attribute) is always 1.e+37 for float variables. Therefore, if a station is not reporting a given variable, all values should be 1.e+37.

The variable names shown below are the value of the "short\_name" attribute. Since NetCDF variable names should not contain periods or quote marks, the actual NetCDF variable name will be the short\_name, with underscores substituted for periods and quotes.

For more information on variable names, see the [ISFF Variable Name Convention](#) .

The OKMN derivations are the operations performed on the Oklahoma Mesonet NetCDF variables before inserting them into the merged Netcdf files. Calibration parameters are shown in italics.

Variable short_name	OKMN derivation	units	stations	description
P	pres + 700	mb	1-9,11-19	barometric pressure
Tslow	tair	degC	11-19	slow response air temp at 1.5m
T.1.5m	ta15	degC	1-9,11-19	air temp at 1.5m
T.9m	ta9m	degC	11-19	air temp at 9m
RH	relh	%	1-9,11-19	relative humidity
U.10m	-wvec*sin(wdir)	m/s	1-9,11-19	10 m wind
V.10m	-wvec*cos(wdir)	m/s	1-9,11-19	10m wind
Spdmax.10m	wmax	m/s	1-9,11-19	10m max wind speed
Spd.2m	ws2m	m/s	11-19	2m wind speed, RMY cup
Spd.9m	ws9m	m/s	11-19	9m wind speed, RMY cup
Rpile.in	cglwin	W/m <sup>2</sup>	supersites	CNR1 incoming longwave
Tcase.in	ctempt	degC	supersites	CNR1 top body temp
Rpile.out	cglwou	W/m <sup>2</sup>	supersites	CNR1 outgoing longwave
Tcase.out	ctempb	degC	supersites	CNR1 bottom body temp
Rsw.in	cmswin	W/m <sup>2</sup>	supersites	CNR1 incoming shortwave
Rsw.out	cmswou	W/m <sup>2</sup>	supersites	CNR1 outgoing shortwave
Rnet	$rnet/70*1000/fcal*o+b$ $+0.02*((Spd.2m>5)-5)$	W/m <sup>2</sup>	11-19	net radiation, NR-Lite
rainr	(rtip[i]-rtip[i-	mm/hr	11-19	rain rate

	1)/300*3600*.254			
Gsoil.5cm	hf5/40*cal * thermal conductivity ratio	W/m^2	11-19	soil heat flux at 5cm (average of a & b)
Tsoil.5cm	m0+m1*prt+m2*prt^2	degC	11-19	soil temp at 5 cm (average of a & b)
G	Gsoil.5cm + storage(st05,ft05,Tsoil.5cm)	W/m^2	11-19	surface heat flux
u	csatx	m/s	1-9,supersites	sonic mean u wind at 4.5m, in sonic coordinates NCAR=ATI sonic, OKMN=CSAT3
v	csaty	m/s	1-9,supersites	sonic mean v component
w	csatz	m/s	1-9,supersites	sonic mean w
tc	avgson	degC	1-9,supersites	virtual temperature
h2o	(avglnk/krycal)+45	g/m^3	1-9,supersites	water vapor density from Krypton sensor
u'u'	varwsx	(m/s)^2	1-9,supersites	sonic u variance
u'v'	covxuy	(m/s)^2	1-9,supersites	sonic u v covariance
u'w'	covzux	(m/s)^2	1-9,supersites	sonic u w covariance
u'tc'	covxst	m/s degC	1-9,supersites	sonic u tc
u'h2o'	covxln/krycal	m/s g/m^3	1-9,supersites	
v'v'	varwsy	(m/s)^2	1-9,supersites	sonic v variance
v'w'	covzuy	(m/s)^2	1-9,supersites	
v'tc'	covyst	m/s degC	1-9,supersites	
v'h2o'	covyln/krycal	m/s g/m^3	1-9,supersites	
w'w'	varwsz	(m/s)^2	1-9,supersites	sonic w variance
w'tc'	covzst	m/s degC	1-9,supersites	
w'h2o'	covzln/krycal	m/s g/m^3	1-9,supersites	
tc'tc'	varson	degC^2	1-9,supersites	sonic tc variance
h2o'h2o'	varlnk/(krycal^2)	(g/m^3)^2	1-	water vapor density variance

			9,supersites	
counts_sync	nmccov	count	1-9,supersites	number of points in eddy-corr statistics
usamples		count	1-9	# of good 200Hz pulse samples in 10Hz sonic sample (20=good)
vsamples		count	1-9	
wsamples		count	1-9	
counts_sonic		count	1-9	number of sonic samples
freq.sonic		Hz	1-9	sonic reporting frequency
uflag		count	1-9	number of detected spikes in u
vflag		count	1-9	number of detected spikes in v
wflag		count	1-9	number of detected spikes in w
tcflag		count	1-9	number of detected spikes in tc
chksumOK		none	1-6	1/0=GOES message passes/fails checksum test
Tbox.eve		degC	1-6	electronics temp
vdc.batt		V	1-6	battery voltage
i.batt		amp	1-6	charging current
i.load		amp	1-6	load current
Tbatt		degC	1-6	battery case temp
ClockError.GOES		sec	1-6	actual-expected packet receipt time (should be < 10)
Signal.GOES		dbm	1-6	Signal strength received at GOES
FreqOffset.GOES		Hz	1-6	Offset from GOES center freq
Channel.GOES			1-6	Channel number (+=GOES East)
MsgStatus.GOES			1-6	0=OK