

CEOP Code number	Variables requested by CEOP (according to Appendix A)	Units	Center's		Remarks	NCEP	UKMO	ECPC	NASA-DAO	NASA-GLDAS	JAM	NCMRWF	ECMWF	
			Code number	Unit										
<b>Top of Atmosphere Processes</b>														
1	shortwave downward flux (positive)	W/m <sup>2</sup>					128	W/m <sup>2</sup>			204	W/m <sup>2</sup>	212	W/m <sup>2</sup>
2	shortwave upward flux (positive)	W/m <sup>2</sup>					129	W/m <sup>2</sup>			211	W/m <sup>2</sup>	178	W/m <sup>2</sup>
3	longwave upward flux (positive)	W/m <sup>2</sup>					130	W/m <sup>2</sup>			212	W/m <sup>2</sup>	179	W/m <sup>2</sup>
<b>Atmosphere Variables</b>														
4	temperature	K					11	K			11	K	130	K
5	pressure	Pa					1	Pa			1	Pa		
6	moisture	kg/kg					51	kg/kg			51	kg/kg	133	kg/kg
7	zonal wind	m/s					33	m/s			33	m/s	131	m/s
8	meridional wind	m/s					34	m/s			34	m/s	132	m/s
9	geopotential (gZ)	m <sup>2</sup> /s <sup>2</sup>					6	m <sup>2</sup> /s <sup>2</sup>						
10	geopotential height	gpm									6	m <sup>2</sup> /s <sup>2</sup>	156	gpm
11	pressure velocity	Pa/s									39	Pa/s	135	Pa/s
12	kinetic + potential energy (KE+gZ+CpT)	J/m <sup>2</sup>					148	m <sup>2</sup> /s <sup>2</sup>						
13	kinetic energy plus enthalpy (CpT+KE)	J/m <sup>2</sup>					147	m <sup>2</sup> /s <sup>2</sup>						
14	cloud water qc	kg/kg					76	kg/kg			76	kg/kg		
<b>Atmosphere Processes 3D</b>														
15	convective latent heating rate	W/m <sup>2</sup>					216	K					216	K
16	stable latent heating rate	W/m <sup>2</sup>												
17	convective moistening rate	kg/(m <sup>2</sup> s)												
18	stable moistening rate	kg/(m <sup>2</sup> s)												
19	turbulent moistening rate	kg/(m <sup>2</sup> s)												
20	turbulent heating rate	W/m <sup>2</sup>												
21	short-wave heating rate	W/m <sup>2</sup>											153	K
22	long-wave heating rate	W/m <sup>2</sup>											154	k
23	moisture zonal flux	kg/(ms)									157	kg/ms		
24	moisture meridional flux	kg/(ms)									152	kg/ms		
25	moisture vertical flux	kg/(ms)												
26	moisture flux divergence	kg/(m <sup>2</sup> s)												
27	energy (CpT+gZ+KE) zonal flux	W/m												
28	energy (CpT+gZ+KE) meridional flux	W/m												
29	energy (CpT+gZ+KE) vertical flux	W/m												
30	energy flux divergence	W/m <sup>2</sup>												
31	total mass zonal flux	kg/(ms)												
32	total mass meridional flux	kg/(ms)												
33	total mass vertical flux	kg/(ms)												
34	mass flux divergence	kg/(m <sup>2</sup> s)												
35	local time tendency of total energy	W/m <sup>2</sup>												
36	local time tendency of temperature	K/s									217	K/s		
37	local time tendency of moisture	kg/(m <sup>2</sup> s)												
38	local time tendency of mass	kg/(m <sup>2</sup> s)												
<b>Vertically Integrated Atmos. Variables</b>														
39	total moisture (precipitable water) Q	kg/m <sup>2</sup>												
40	total dry energy (CpT+KE+φs)	J/m <sup>2</sup>												
41	total cloud water	kg/m <sup>2</sup>												
42	surface pressure	Pa					144	Pa					152	pA
43	total aerosol	kg/m <sup>2</sup>												
<b>Vertically Integrated Processes</b>														
44	convective latent heating rate	W/m <sup>2</sup>												
45	stable latent heating rate	W/m <sup>2</sup>												
46	convective moistening rate	kg/(m <sup>2</sup> s)												
47	stable moistening rate	kg/(m <sup>2</sup> s)												
48	precipitation (total)	kg/(m <sup>2</sup> s)					61	kg/m <sup>2</sup>						
49	precipitation (snow)	kg/(m <sup>2</sup> s)												
50	water vapor zonal flux	kg/(ms)												
51	Water vapor meridional flux	kg/(ms)												
52	water vapor flux divergence	kg/(m <sup>2</sup> s)												
53	total energy flux divergence	W/m <sup>2</sup>												
54	mass flux divergence	kg/(m <sup>2</sup> s)												

CEOP\_Core\_Code\_Table

55	local time tendency of total mass	kg/(m <sup>2</sup> s)																		
56	local time tendency of total energy	m <sup>2</sup> /s <sup>3</sup>																		
57	local time tendency of moisture	kg/(m <sup>2</sup> s)																		
	<b>Surface Variables</b>																			
58	skin temperature	K					145	K								85				
59	2-meter temperature	K					152	K								11		167	k	
60	2-meter specific humidity	kg/kg					153	kg/kg										168	KG/KG	
61	u-component at 10 m	m/s					155	m/s								33		165	M/S	
62	v_component at 10 m	m/s					156	m/s								34		166	M/S	
63	potential temperature at 10 m	K																		
64	specific humidity at 10 m	kg/kg																		
65	Soil moisture	m					86	kg/m <sup>2</sup>										140	M	
66	snow water equivalent	m					99	kg/m <sup>2</sup>								65		m		
67	snow depth	m					66	m								66		m	141	M
68	vegetation water	kg/m <sup>2</sup>														223		kg/m <sup>2</sup>		
69	planetary boundary layer height	m					137	m								221		m	159	M
	<b>Surface Processes</b>																			
70	shortwave downward flux (positive number)	W/m <sup>2</sup>					133	W/m <sup>2</sup>								204		W/m <sup>2</sup>		
71	shortwave upward flux (positive number)	W/m <sup>2</sup>					134	W/m <sup>2</sup>								211		W/m <sup>2</sup>		
72	longwave downward flux (positive number)	W/m <sup>2</sup>					135	W/m <sup>2</sup>								205		W/m <sup>2</sup>	175	W?M <sup>2</sup>
73	longwave upward flux (positive number)	W/m <sup>2</sup>					136	W/m <sup>2</sup>								212		W/m <sup>2</sup>	177	W?M <sup>2</sup>
74	sensible heating =Total turbulent heating (positive up)	W/m <sup>2</sup>					122	W/m <sup>2</sup>								122		W/m <sup>2</sup>	146	W?M <sup>2</sup>
75	latent heating=Total turbulent latent heating (positive up)	W/m <sup>2</sup>					121	W/m <sup>2</sup>								121		W/m <sup>2</sup>	147	W?M <sup>2</sup>
76	total turbulent moistening =evaporation(positive upward)	kg/(m <sup>2</sup> s)					57	kg/(m <sup>2</sup> s)												
77	snow and frozen ground conversion to soil water	W/m <sup>2</sup>																		
78	snow and frozen ground conversion to soil water	kg/(m <sup>2</sup> s)																		
79	surface runoff	kg/(m <sup>2</sup> s)														235		kg/(m <sup>2</sup> s)		
80	baseflow runoff	kg/(m <sup>2</sup> s)																		
81	water runoff (surface + subsurface) a	kg/(m <sup>2</sup> s)					90	kg/(m <sup>2</sup> s)												
82	total ground heating=G	W/m <sup>2</sup>																		
83	local skin temperature tendency	K/s																		
84	local soil moisture tendency	kg/m <sup>2</sup> s																		
85	local snow water equivalent tendency	kg/m <sup>2</sup> s																		
	<b>Subsurface Variables</b>																			
86	soil moisture	%														86		%		
87	temperature	K														85		K		
	<b>Subsurface Processes</b>																			
88	infiltration rate	kg/m <sup>2</sup> s																		
89	local soil moisture tendency	kg/m <sup>2</sup> s																		
90	local temperature tendency	kg/m <sup>2</sup> s																		
	<b>Bottom of Subsurface Variables</b>																			
91	temperature	K														85				
	<b>Bottom of Subsurface Processes</b>																			
92	ground heat flux	W/m <sup>2</sup>														155		W/m <sup>2</sup>		
	<b>Miscellaneous</b>																			
93	precipitation type 1 rain or 2 snow	1,2																		
94	elevation	m					33	m								8		m		
95	surface albedo	%																	174	%
96	station land/sea/ice mask 0(land)or1(sea)or2(ice)	0,1,2					31	0,1								150		0/1/2		
98	total loud cover	%					71	%								71		%	162	%
99	surface exchange coefficient	m/s																		
100	roughness length	m					83	m								83		m		
101	vegetation cover	%														87		%		
102	water table (wells)	m																		
103	streamflow	m <sup>3</sup> /s																		
104	stream discharge	m <sup>3</sup> /s																		
105	reservoir storage	m																		
254	set of variables																			
255	other variable																			
	Version from 12/02/2004																			