

1). Data information: GEFS reforecast covers the period of January 1999-December 2016. Reforecast is launched every 7 days (Wednesday). It is a 11 members run (1 control + 10 perturbed members, m00 corresponds to the control run while m01-10 corresponds to the 10 perturbed members) and each run includes 35-day forecast.

2). Notes for the output\_p2 variables.

Because GEFS doesn't directly output: 1). Net surface radiation, 2). Snow density, 3). Vertically integrated soil moisture, we saved each component for net surface radiation, snow density and vertically integrated soil moisture and let user to compute the final variables.

Variables	GEFS Abbrev	SubX request variables	Formula
surface upward long-wave rad.	ulwrf_sfc	net surface radiation	ulwrf-dlwrf+ uswrf-dswrf
surface upward short-wave rad.	uswrf_sfc		
surface downward short-wave rad.	dswrf_sfc		
surface downward long-wave rad.	dlwrf_sfc		
water equivalent of accumulated snow depth	swe_sfc	snow density	swe/snod
snow depth	snod_sfc		
volumetric soil moisture content(0-0.1m)	soilw1_sfc	vertically integrated soil moisture	soilw1+ soilw2+ soilw3+ soilw4
volumetric soil moisture content(0.1-0.4m)	soilw2_sfc		
volumetric soil moisture content(0.4-1m)	soilw3_sfc		
volumetric soil moisture content(1-2m)	Soilw4_sfc		