WRF v3.2 – **New namelist entries for soil type, vegetation type, soil temperature, and soil moisture**

Create new entries in namelist PHYSICS:
VEG_TYPE   vegetation index (USGS)
SOIL_TYPE   soil index
SOIL_MOIST   soil moisture, for every soil layer (NUM_SOIL_LAYERS)
SOIL_TEMP_OFFSET soil temperature offset from TSK, (NUM_SOIL_LAYERS)

values are used to initialize GRID%LU_INDEX, GRID%IVGTYP, GRID%ISLTYP, GRID%SMOIS, and GRID%TSLB in module_initialize_les.F

Create new entries in Registry/Registry.EM:
```
rconfig        integer      veg_type      namelist,physics      1      7      h
       "vegetation_type"    "USGS vegetation type"       ""

rconfig        integer       soil_type      namelist,physics      1      7      h
       "soil_type"     Soil type"      ""

rconfig        real    soil_moist     namelist,physics      max_soil_layers      0.1
       h        "soil_moisture"       ""       "m3/m3"

rconfig        real    soil_temp_offset      namelist,physics      max_soil_layers
       0.2    h       "soil_temp_offset"      "Soil temperature offset from TSK"
       "K"
```


Change TOOLS/GEN_CONFIG.C to be able to use MAX_SOIL_LAYERS in the Registry. (line numbers refer to unmodified code)

1) Add after line 281
```
} else if ( !strcmp( p->nentries, "max_soil_layers" )) {
fprintf(fp,"  IF ( id_id .LT. 1 .OR. id_id .GT.
       model_config_rec%%num_soil_layers ) THEN\n") ;
fprintf(fp,"   WRITE(emess,*)'nl_%s_%s: Out of range soil layer number:
       ',id_id\n",gs,p->name) ;
```

2) replace line 283
```
OLD:  fprintf(stderr,"Registry WARNING: multi element rconfig entry must
       be either max_domains, max_moves, max_eta, max_outer_iterations, or
       max_instruments \n") ;

NEW:  fprintf(stderr,"Registry WARNING: multi element rconfig entry must
       be either max_domains, max_moves, max_eta, max_outer_iterations,
       max_instruments, or max_soil_layers \n") ;
```

3) repeat 1 after line 321

4) repeat 2 for line 323

Change FRAME/MODULE_DRIVER_CONSTANTS
Add after line 62: INTEGER, PARAMETER :: max_soil_layers = 6