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