

Outline

- Overview
- data_table
- Data Override Routines



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Overview

- Use data for a given field from an external NetCDF file
- Fields and external files are defined at run time in `data_table` file
- Spatial and temporal interpolation done (if necessary) to convert data to model's grid and time
- Override done on cyclical basis
 - Cycle length determined by time axis in NetCDF file
- Override done at `flux_exchange` level



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Using the API

1. Call `data_override_init` to initialize data override
2. Call `data_override` to read in external data for overridden variables



data_override_init

- Should be called in `coupler_init` after `{ocean,atmos,land,ice}_model_init` routines have been called
- Can be called more than once

data_override_init

```
SUBROUTINE data_override_init (Atm_domain_in, Ocean_domain_in, &  
    & Ice_domain_in, Land_domain_in)
```

- From coupler/coupler_main.F90

```
use data_override_mod, ONLY : data_override_init  
  
...  
If ( Atm%pe ) then  
    call atmos_model_init (Atm, Time_init, Time, time_step_atmos)  
...  
    call land_model_init (Atmos_land_boundary, Land, Time_init, &  
        & Time, Time_step_atmos, Time_step_cpld)  
...  
    call ice_model_init (Ice, Time_init, time, time_step_atmos, &  
        & Time_step_cpld)  
...  
    call data_override_init (Atm_domain_in=Atm%domain, &  
        & Ice_domain_in=Ice%domain, Land_domain_in=Land%domain)  
end if  
...
```

data_override

```
SUBROUTINE data_override (gridname, fieldname_code, data, time, override,&  
    & data_index, is_in, ie_in, js_in, je_in, )
```

- Called in flux_exchange
- From coupler/flux_exchange.F90

```
use data_override_mod, onlu: data_override  
  
...  
call data_override ('ATM', 't_bot', Atm%t_bot , Time)  
call data_override ('ATM', 'z_bot', Atm%z_bot , Time)  
call data_override ('ATM', 'p_bot', Atm%p_bot , Time)  
call data_override ('ATM', 'u_bot', Atm%u_bot , Time)  
call data_override ('ATM', 'v_bot', Atm%v_bot , Time)  
call data_override ('ATM', 'p_surf', Atm%p_surf, Time)  
call data_override ('ATM', 'slp', Atm%slp, Time)  
call data_override ('ATM', 'gust', Atm%gust, Time)
```

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data_table

- Plain ASCII file
- Each line represents a field to be overridden with external data
 - Consists of 6 required (+2 optional) fields
- Comments begin with pound sign (#)
 - Must be first character on line
- Note: Line cannot be split
 - Splitting done for readability ONLY



data_table

```
# Ice overrides (Old Format)
"ICE", "sic_obs", "SIC", "INPUT/sst_ice_clim.nc", .FALSE., 0.01
"ICE", "sit_obs", "SIC", "INPUT/sst_ice_clim.nc", .FALSE., 1.06
"ICE", "sst_obs", "SST", "INPUT/sst_ice_clim.nc", .FALSE., 1.0

# Atmosphere overrides (New Format)
"ATM", "doa_aerosol", "soa", "INPUT/aerosol_month.nc", "none", 1.0
"ATM", "dust1_aerosol", "dust1", "INPUT/aerosol_month.nc", "none", 1.0

# Land overrides (New Format)
"LND", phot_co2, "co2", "INPUT/co2_data.nc", "bilinear", 1.0e-6
```

data_table

```
# Atmosphere overrides (New Format)
"ATM", "doa_aerosol", "soa", "INPUT/aerosol_month.nc", "none", 1.0
```

- **CHARACTER(len=3) :: gridname**
 - Name of component grid
 - ICE, OCN, ATM, LND
- **CHARACTER(len=128) :: fieldname_code**
 - Name of field used in the data_override routine call
- **CHARACTER(len=128) :: fieldname_file**
 - Name of field from the NetCDF file
 - To use a constant value for the override, leave field blank (“”) and set `factor` to value of constant
 - Cannot use constant if using regional override
- **CHARACTER(len=512) :: file_name**
 - Name of the NetCDF file



data_table

```
# Atmosphere overrides (New Format)
"ATM", "doa_aerosol", "soa", "INPUT/aerosol_month.nc", "none", 1.0
```

- **CHARACTER (len=128) :: interpol_method**
 - Interpolation method
 - default
 - bicubic
 - bilinear
 - none
 - New Format
 - Default: bilinear
- **REAL :: factor**
 - Unit conversion factor
 - If `fieldname_file` is blank, value is used as a constant
 - Default: 1.0

