

OBSGRID FASDAS Documentation – WRF3.8 – 07-20-2016

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The following is a list of OBSGRID files that have been modified:

```
namelist.oa  
src/namelist.common  
src/namelist.inc  
src/namelist.nml  
src/namelist_module.F90  
src/driver.F90  
src/proc_qc.F90  
src/qc0_module.F90
```

Figure 1 shows the coding flow diagram:

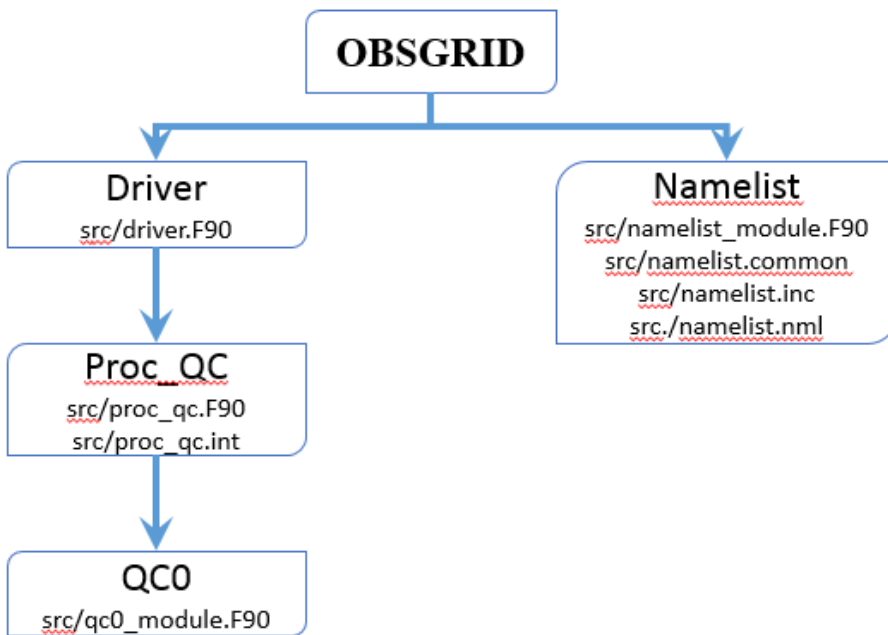


Fig 1. FASDAS OBSGRID coding flow diagram

```

&record4
qc_test_error_max           = .TRUE.
qc_test_buddy               = .TRUE.
qc_test_vert_consistency    = .TRUE.
qc_test_convective_adj      = .FALSE.
max_error_t                 = 4
max_error_uv                = 4
max_error_z                 = 4
max_error_rh                = 20
max_error_p                 = 600
max_buddy_t                 = 4
max_buddy_uv                = 4
max_buddy_z                 = 4
max_buddy_rh                = 20
max_buddy_p                 = 800
buddy_weight                = 1.0
max_p_extend_t              = 1300
max_p_extend_w              = 1300
rinblw                      = 24.0
/

```

Fig 2. Sample of modified OBSGRID namelist record4.

```

&record9
oa_type                     = 'Cressman'
radius_influence            = 20,15,10,5
mqd_minimum_num_obs         = 30
mqd_maximum_num_obs         = 1000
oa_min_switch               = .TRUE.
oa_max_switch               = .TRUE.
/

```

Fig 3. Sample of modified OBSGRID namelist record9.

Level 1

```
===== src/namelist_module.F90 =====
SUBROUTINE check_namelist ( nml )
- .....
-   ! 406: Check for rinblw parameter

    test_406 : IF (nml%record_4%rinblw .LT. 0.01) THEN
        nml%record_4%rinblw = 250.0
        error_message = ' '
        error_number = 00013406
        error_message(1:31) = 'check_namelist'
        error_message(32:) = ' No rinblw specified or too small will default to 250km.'
        fatal = .false.
        listing = .false.
        call error_handler ( error_number , error_message , fatal , listing )
    END IF test_406
- .....
END SUBROUTINE check_namelist
SUBROUTINE store_namelist ( nml )
- .....
    nml%record_4%max_p_extend_t      = max_p_extend_t
    nml%record_4%max_p_extend_w      = max_p_extend_w
    nml%record_4%rinblw              = rinblw
- .....
END SUBROUTINE store_namelist
```

```
===== src/driver.F90 =====
SUBROUTINE driver (...)
- .....
    IF ( ( .NOT. nml%record_7%f4d ) .OR. &
        ( ( nml%record_7%f4d ) .AND. ( fdda_loop .EQ. 1 ) ) ) THEN
(1.1)      - CALL proc_qc ( ... nml%record_4%rinblw, ... )
    ELSE
(1.1)      - CALL proc_qc ( ... nml%record_4%rinblw, ... )
    END IF
- .....
END SUBROUTINE driver
```

Level 2

```
===== src/proc_qc.F90 =====
SUBROUTINE proc_qc ( ...rinblw,...)
- .....
    IF ( kp .EQ. 1 ) THEN
(2.1)      - CALL ob_density ( ... rinblw )
    END IF
- .....
END SUBROUTINE proc_qc
```

Level 3

```
===== src/qc0_module.F90 =====
SUBROUTINE ob_density (..... rinblw)
- .....
  jobs = MAX ( job - NINT( rinblw / grid_dist ) - 1 , 1 )
  jobe = MIN ( job + NINT( rinblw / grid_dist ) + 1 , jns-1 )
  iobs = MAX ( iob - NINT( rinblw / grid_dist ) - 1 , 1 )
  iobe = MIN ( iob + NINT( rinblw / grid_dist ) + 1 , iew-1 )
- .....
  IF ( dist .LT. rinblw / grid_dist ) THEN
    tobbbox(j,i) = tobbbox(j,i) + 1
  END IF
- .....
END SUBROUTINE ob_density
=====
```