|  |  |  |
| --- | --- | --- |
| **In FVCOM442\_source:** | | |
|  | | |
| **New added(5)** | | |
| adv\_q\_rk.F | | For 3D RK scheme |
| adv\_s\_rk.F | | For 3D RK scheme |
| adv\_t\_rk.F | | For 3D RK scheme |
| adv\_uv\_edge\_gcn\_rk.F | | For 3D RK scheme |
| adv\_uv\_edge\_gcy\_rk.F | | For 3D RK scheme |
|  | | |
| **Modified (28):** | | |
| adv\_t.F | Updated based on adv\_s.F | |
| bcond\_gcn.F | Updated for multiple wind stress methods by Siqi Li | |
| bcond\_gcy.F | Updated for multiple wind stress methods by Siqi Li | |
| coare26z.F | Updated for multiple wind stress methods by Siqi Li | |
| coare40vn.F | Updated for multiple wind stress methods by Siqi Li | |
| Fvcom.F | Commented below again because Stokes drift didn’t calculate correctly in code  !for Eulerian velocity output  ! U = U-U\_STOKES\_3D  ! V = V-V\_STOKES\_3D  ! UA=UA-U\_STOKES\_2D  ! VA=VA-V\_STOKES\_2D  CALL ARCHIVE  !Convert Eulerian velocity back to Lagrangian velocity to maintain consistent with Mellor's equation  ! U = U+U\_STOKES\_3D  ! V = V+V\_STOKES\_3D  ! UA=UA+U\_STOKES\_2D  ! VA=VA+V\_STOKES\_2D | |
| internal\_step.F | a. Added code for 3D RK schemes  b. Commented below again because Stokes drift didn’t calculate correctly in code  ! U = U-U\_STOKES\_3D  ! V = V-V\_STOKES\_3D  c. Added calculating mixed layer depth | |
| makefile | Added files for 3D RK scheme related | |
| mod\_action\_ex.F | Fixed the bug for wave only | |
| mod\_assim.F | Updated by Lu Wang | |
| mod\_bio\_3D.F | Added TVD scheme and updated MPDATA method | |
| mod\_bulk.F | Updated the module mod\_bulk for different choices of wind stress calculation methods by Siqi Li | |
| mod\_dye.F | Added subroutine ADV\_DYE\_RK for 3D RK scheme | |
| mod\_force.F | a. Unified the unit of air pressure by Siqi Li  b. Added the selections of WIND\_STRESS\_METHOD in subroutine SURFACE\_WINDSTRESS by Siqi Li  c. Updated subroutine UPDATE\_HEAT\_CALCULATED for different wind stress methods | |
| mod\_heatflux.F | Moved ZUU to mod\_main.F by Siqi Li | |
| mod\_input.F | a. Set the default value of RK\_3D\_ON as F  b. Set the default values of WIND\_STRESS\_METHOD and ZUU by Siqi Li  c. Added NetCDF read of G%Z in subroutine LOAD\_GRID\_TYPE by Zhigang Lai  d. Fixed the problem for spherical coordinates in subroutine IS\_TRI\_CW by Siqi Li  e. Added default parameters in namelist NML\_MLD | |
| mod\_main.F | a. Added logical parameter RK\_3D\_ON for 3D RK scheme  b. Move variable definition of ZUU in namelist NML\_SURFACE\_FORCING to here by Siqi Li  c. Added variable definition of WIND\_STRESS\_METHOD in NML\_SURFACE\_FORCING by Siqi Li  d. Added some variable definitions for surface drag coefficient by Siqi Li  e. Added namelist NML\_MLD definition by Siqi Li | |
| mod\_main\_wave.F | Added CP definition by Siqi Li – wave phase speed | |
| mod\_mld\_rho.F | Updated by Siqi Li for general mixed layer depth calculation and output | |
| mod\_ncdio.F | a. Added NetCDF output for Cd in FUNCTION WIND\_STRESS\_FILE\_OBJECT by Siqi Li  b. Updated in function NH\_RST\_FILE\_OBJECT by Siqi Li  c. Added maxied layer depth output by Siqi Li  d. Added inundation map variable output by Qichun Xu | |
| mod\_nesting.F | Updated for fixing nh nesting bugs and extra by Zhigang Lai | |
| mod\_non\_hydro.F | Commented ‘CALL SET\_W\_OBC’ and ‘CALL UPDATE\_ZETA’ by Siqi Li | |
| mod\_startup.F | a. Added calculating WW in subroutine READ\_NH by Zhigang Lai  b. Added ‘VAR=>FIND\_VAR(NC\_START,’ww’,FOUND)’ in subroutine READ\_UV by Siqi Li | |
| mod\_station\_timeseries.F | Modified the method to calculate global triangle grid edges | |
| mod\_wd.F | Added inundation map variable by Qichun Xu | |
| nh\_set\_nesting.F | Fixed bugs for nh nesting by Zhigang Lai | |
| swanmain.F | Fixed bugs for wave only | |
| vdif\_q.F | Separated the wind calculation on node for wind online and wind offline | |