

Index

Symbols

- f -plane, 255, 257, 257, 258, 285
 C_d , drag coefficient, 106
 C_p , heat capacity at constant pressure, 322
 C_v , heat capacity at constant volume, 74
 H , vertical length scale, 24
 K , Decay rate, 150
 L , Length scale, 3
 L , horizontal length scale, 24
 L_β , Critical meander scale, 554
 N^2 , square of the Brunt–Väisälä frequency, 324
 Q , source term, 57
 R , Rossby radius of deformation, 252
 S , Source, 150
 S , salinity, 73
 T , temperature, 73
 T , time scale, 24
 Δt , time step, 50
 \Im , imaginary part of a complex number, 254
 Ω , rotation rate, 37
 \Re , real part of a complex number, 254
 α , implicit level of a numerical scheme, 53
 $\langle u \rangle$, average of u , 91
 Bu , Burger number, 331
 C , Courant number $C = u\Delta t/\Delta x$, 157
 δ_{ij} , Kronecker symbol (0 if $i \neq j$, 1 otherwise, 240
 D , dimensionless number for discretized diffusion, 131
 ϵ , Dissipation, 408
 η , sea surface height, 103
 Fr , Froude number, 329
 γ , constant of an ideal gas C_p/C_v , 322
 i , square root of -1, $i^2 = -1$, 133
 κ_S , coefficient of salt diffusion, 76
 λ , longitude, 47
 \mathcal{L} , a linear operator, 156
 l_m , mixing length, 411
 \tilde{c} , Numerical approximation of tracer concentration c , 129
 \tilde{u} , generic numerical field of physical field u , 57
 \tilde{u} , numerical approximation of u , 50
 \mathbf{I} , unit vector in absolute X direction, 37
 \mathbf{J} , unit vector in absolute Y direction, 37
 Ω , vector rotation, 40
 \mathbf{i} , unit vector in local x direction, 37
 \mathbf{j} , unit vector in local y direction, 37
 \mathbf{k} , unit vector in local z direction, 37
 \mathbf{r} , position vector, 37
 $\mathcal{O}(a)$, Order of magnitude of a , 3
 q , flux, 81
 $P_{m,n}$, Legendre function, 600
 $Y_{m,n}$, Spherical harmonic function, 600
 k , Kinetic turbulent energy, 408
 \mathbf{A} , a matrix, 143
 \mathbf{L} , lower triangular matrix, 725
 \mathbf{U} , upper triangular matrix, 725
 $\%$, parts per thousand, 73
 \mathcal{K} , Von Karman constant, 220
 U , transport in x -direction, 197
 V , transport in v -direction, 197
 ∇^2 , Laplace operator, 74
 ν , kinematic viscosity, 78
 ν_E , eddy viscosity in vertical, 93
 ω , frequency, 30
 ϕ , phase angle, 42
 ψ , Streamfunction, 170
 $\arg(\varrho)$, Argument of a complex number ϱ , *i.e.*, angle with the real axis, 134
 ρ , density (in kg/m^3), 71
 Ri , Richardson number, 405
 τ^x , wind stress in direction x ., 106

τ^y , wind stress in direction y ., 106
 τ^{yz} , shear stress, 72
 τ_b^x , x component of bottom stress, 238
 θ , potential temperature, 324
 \times , vector product, 40
 φ , latitude, 47
 ρ , Amplification factor, 134
 ζ , Relative vorticity, 194, 196
 b , position of a bottom boundary, 103
 c , Tracer concentration, 127
 du/dt , material derivative of u , 72
 f , Coriolis parameter, 50
 f_* , reciprocal Coriolis parameter, 50
 k_T , thermal conductivity, 74
 psu , practical salinity unit, 73
 q , Potential vorticity, 196
 q , specific humidity, 74
 t , time, 37
 t^n , value of t at discrete moment $t = n\Delta t$,
 50
 u , any physical variable, 57
 u , x -component of velocity (in m/s), 71
 v , y -component of velocity (in m/s), 71
 w , z -component of velocity (in m/s), 71
 x , local coordinate west-east, 37
 y , local coordinate south-north, 37
 z , local coordinate upwards, 37
 Ek , Ekman number, 100
 Pe , Peclet number, 153
 Ra , Rayleigh number, 430
 Re , Reynolds number, 100
 Ri , Richardson number, 101
 Ro_T , temporal Rossby number, 100
 Ro , Rossby number, 100
 A , eddy viscosity in horizontal, 93
 Sv , $1 Sv = 10^6 m^3/s$, 86

A

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