Modular Analysis of Tropical Cyclones

Francis Fendell, Paritosh Mokhasi, Gregory Smetana

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Nomenclature

Variables

Symbol	Description	Units
ρ	density	$\mathrm{kg\,m^{-3}}$
p	pressure	Pa
rh	relative humidity	-
T	temperature	K
y	water vapor mass fraction	-
z	altitude	m

Constants

Symbol	Description	Value	Units
σ	ratio, molecular weights	0.622	-
c_p	specific heat capacity, const p	10^4	$\mathrm{m^2\,s^{-2}\,K^{-1}}$
g	gravity	9.81	$\mathrm{m\,s^{-2}}$
L	specific latent heat, phase transition	$2.5 * 10^6$	$\mathrm{m^2\,s^{-2}}$
R	gas constant for air	287.1	$\mathrm{m^2\,s^{-1}\,K^{-1}}$

Subscripts

Symbol	Description
amb	ambient

eye	eye
moist	moist adiabat
s	ocean-surface value
sat	saturated
switch	lifting condensation level
trop	tropopause
underrun	underrunning moist air
v	water vapor
vsat	saturated water vapor