

GOCART Aerosols (15 Species)

Dust (5 bins)

NIFA

Sea Salt (5)

NWFA

Sulfate

NWFA

BC1, BC2

OC1, OC2

NWFA (OC2)

NIFA (Ice-Friendly Aerosol / INP)

NWFA (Water-Friendly Aerosol / CCN)

Thompson Microphysics

Ice Nucleation

Microphysical Processes
Growth, Aggregation

Droplet Activation

Aerosol Indirect Effects

1st: $\uparrow$ Aerosol $\rightarrow$ $\uparrow$ Droplet # $\rightarrow$
 $\downarrow$ Size $\rightarrow$ $\uparrow$ Albedo

2nd: $\downarrow$ Autoconversion $\rightarrow$
Suppressed Rain

Glaciation: $\uparrow$ INP $\rightarrow$ $\uparrow$ Ice # $\rightarrow$
Modified Growth

Inline Wet Removal (Size-Dependent Collection)

Rain Collection

Snow Collection

Graupel Collection

Mass Conservation & Feedback

Aerosol tendencies returned to GOCART: Activation • Nucleation • Wet Removal