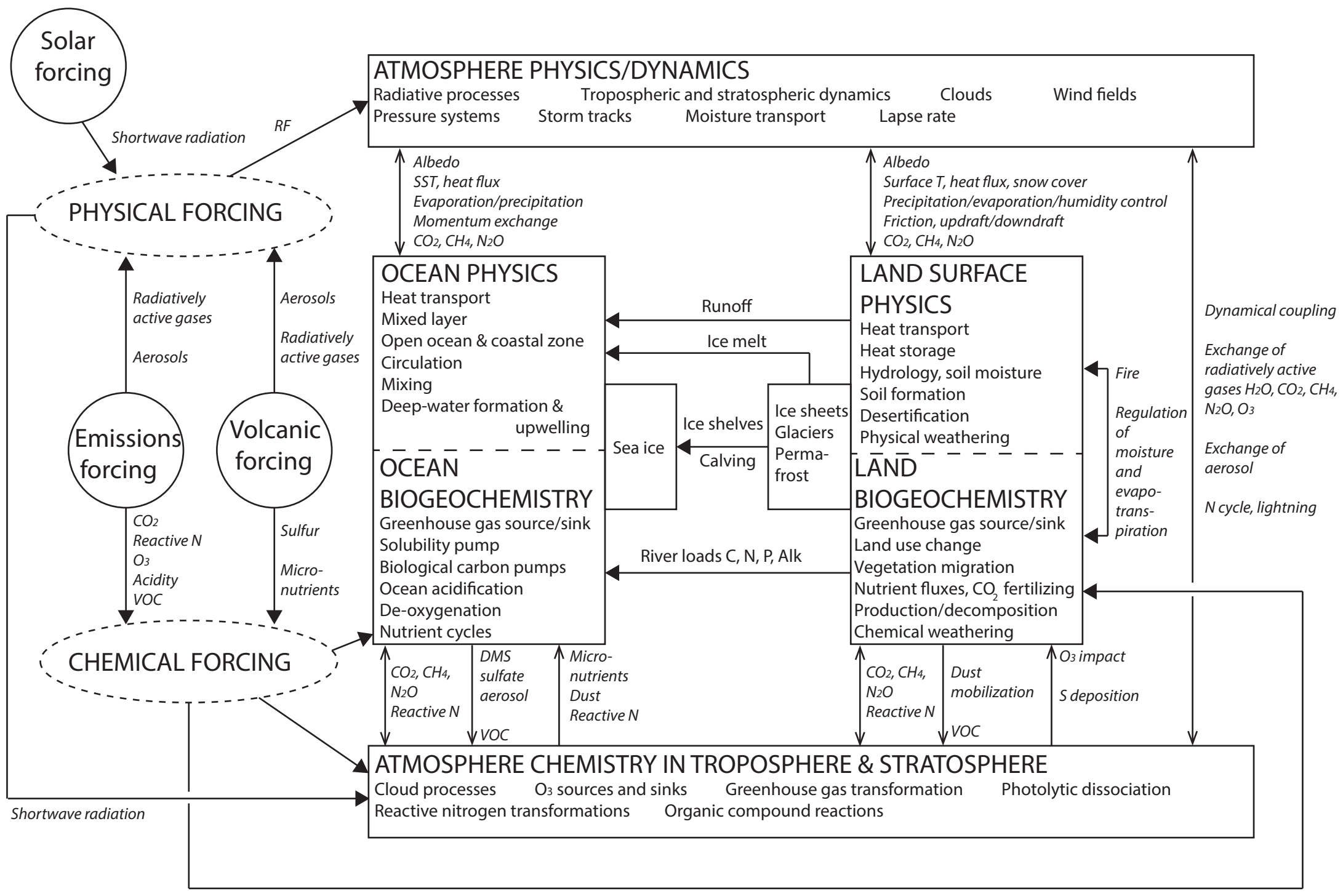
Solar forcing
Shortwave radiation
RF
ATMOSPHERE PHYSICS/DYNAMICS
Radiative processes
Tropospheric and stratospheric dynamics
Clouds
Wind fields
Pressure systems
Storm tracks
Moisture transport
Lapse rate
PHYSICAL FORCING
Albedo
SST, heat flux
Evaporation/precipitation
Momentum exchange
CO2, CH4, N2O
Albedo
Surface T, heat flux, snow cover
Precipitation/evaporation/humidity control
Friction, updraft/downdraft
CO2, CH4, N2O
Radiatively active gases
Aerosols
Aerosols
Radiatively active gases
OCEAN PHYSICS
Heat transport
Mixed layer
Open ocean & coastal zone
Circulation
Mixing
Deep-water formation & upwelling
Runoff
Ice melt
LAND SURFACE PHYSICS
Heat transport
Heat storage
Hydrology, soil moisture
Soil formation
Desertification
Physical weathering
Dynamical coupling
Exchange of radiatively active gases H2O, CO2, CH4, N2O, O3
Exchange of aerosol
N cycle, lightning
Emissions forcing
Volcanic forcing
Sea ice
Ice shelves
Calving
Ice sheets
Glaciers
Perma-frost
Fire
Regulation of moisture and evapo-trans-piration
OCEAN BIOGEOCHEMISTRY
Greenhouse gas source/sink
Solubility pump
Biological carbon pumps
Ocean acidification
De-oxygenation
Nutrient cycles
River loads C, N, P, Alk
LAND BIOGEOCHEMISTRY
Greenhouse gas source/sink
Land use change
Vegetation migration
Nutrient fluxes, CO2 fertilizing
Production/decomposition
Chemical weathering
CO2
Reactive N
O3
Acidity
VOC
Sulfur
Micro-nutrients
CHEMICAL FORCING
CO2, CH4, N2O
Reactive N
DMS
sulfate aerosol
VOC
Micro-nutrients
Dust
Reactive N
CO2, CH4, N2O
Reactive N
Dust mobilization
VOC
O3 impact
S deposition
ATMOSPHERE CHEMISTRY IN TROPOSPHERE & STRATOSPHERE
Cloud processes
O3 sources and sinks
Greenhouse gas transformation
Photolytic dissociation
Reactive nitrogen transformations
Organic compound reactions
Shortwave radiation