PALM Ocean-Atmosphere Coupling

PALM group

Institute of Meteorology and Climatology, Leibniz Universität Hannover

last update: 21st September 2015

PALM - Ocean-Atmosphere Coupling - General Method

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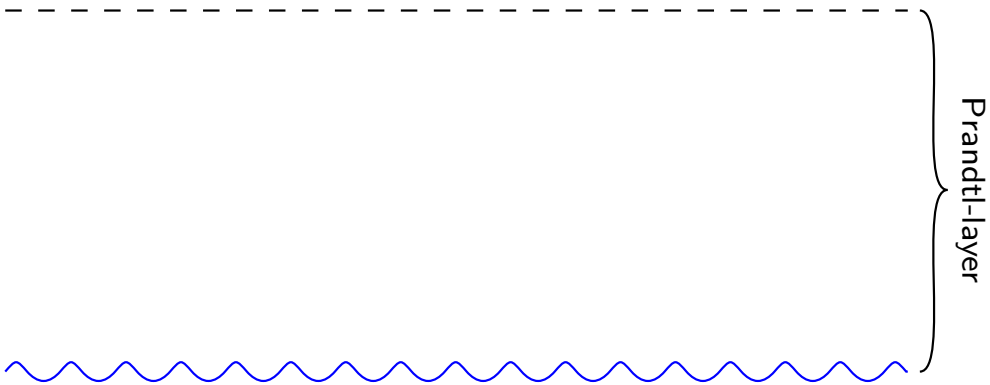
- atmosphere to ocean
  coupling through Prandtl-Monin-Obukhov sublayer (constant flux layer)



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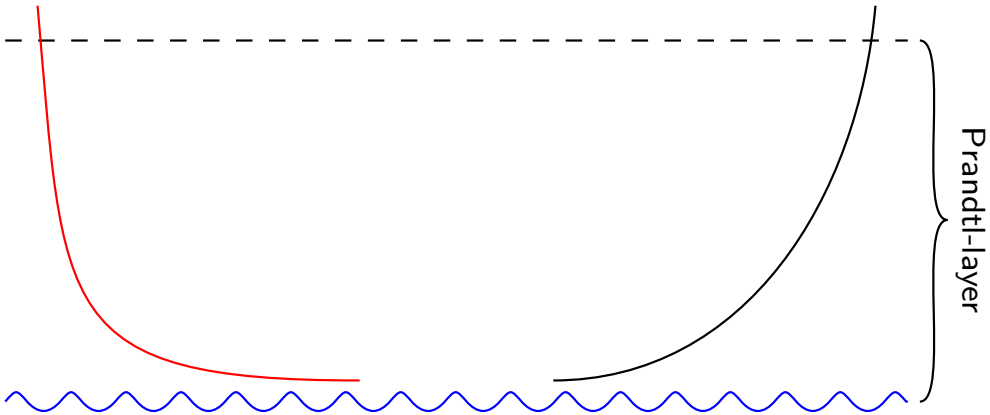

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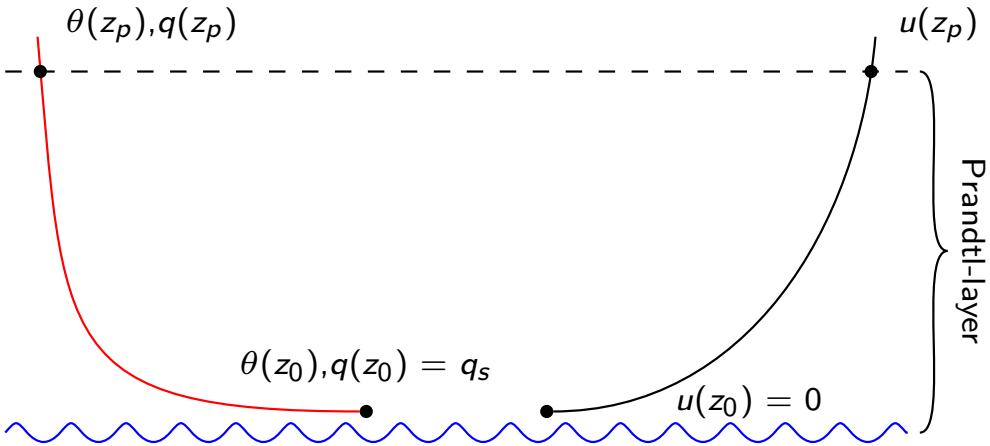

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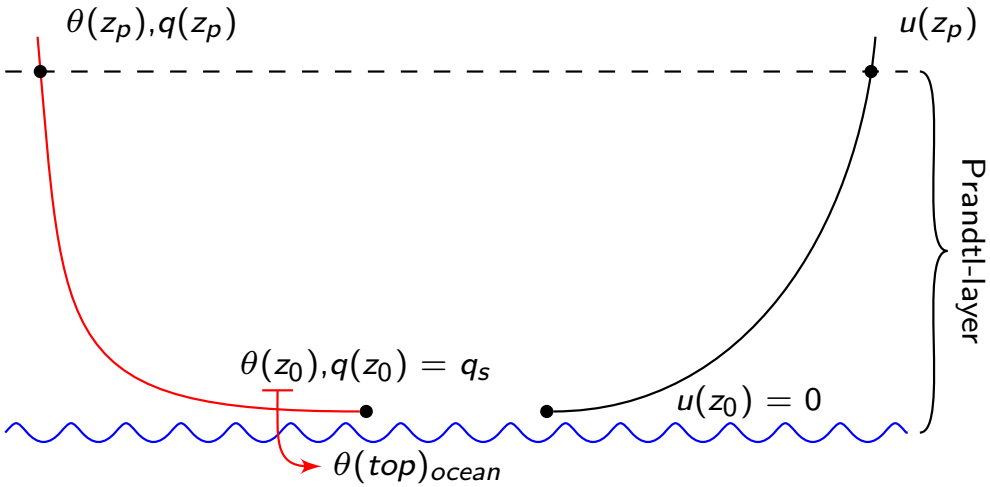

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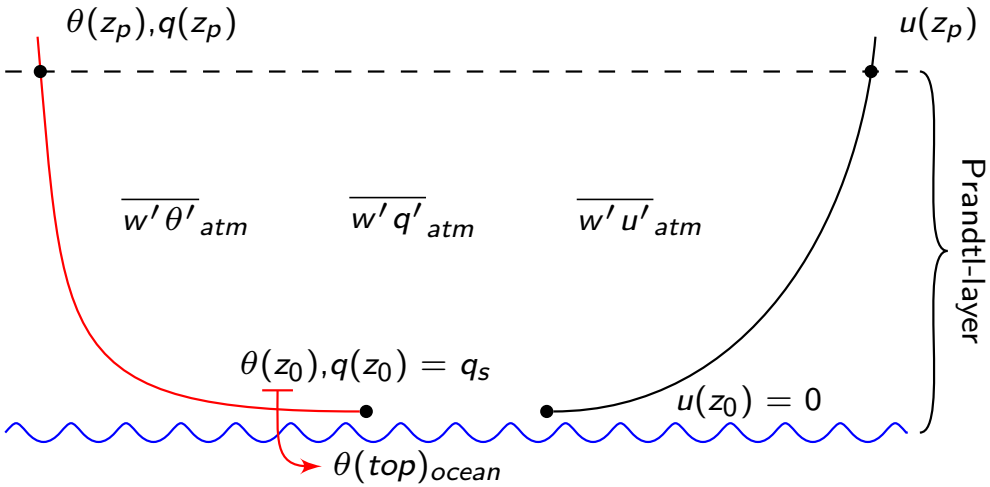

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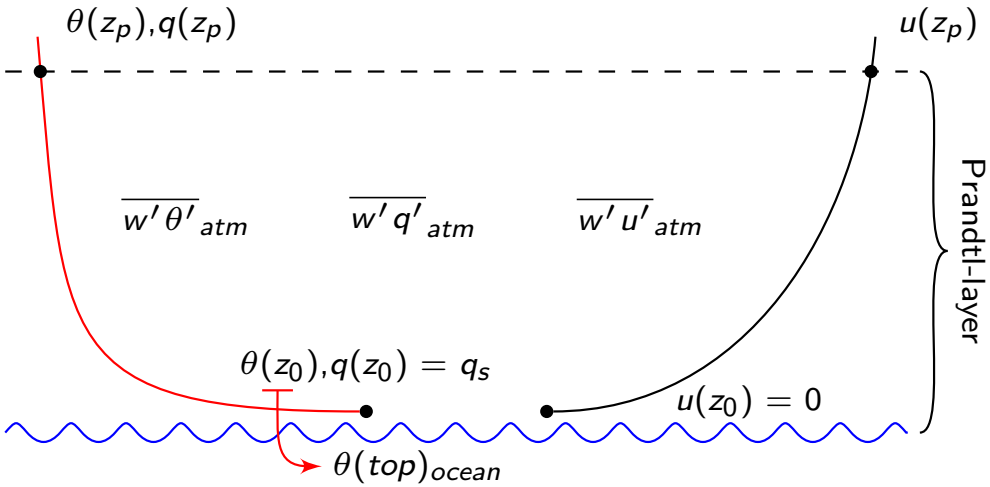

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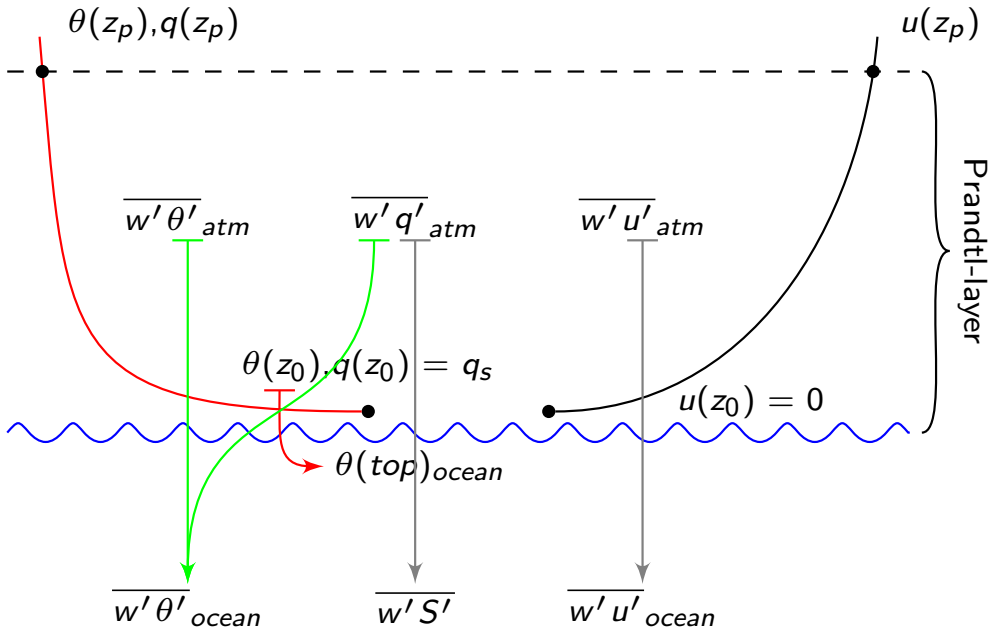

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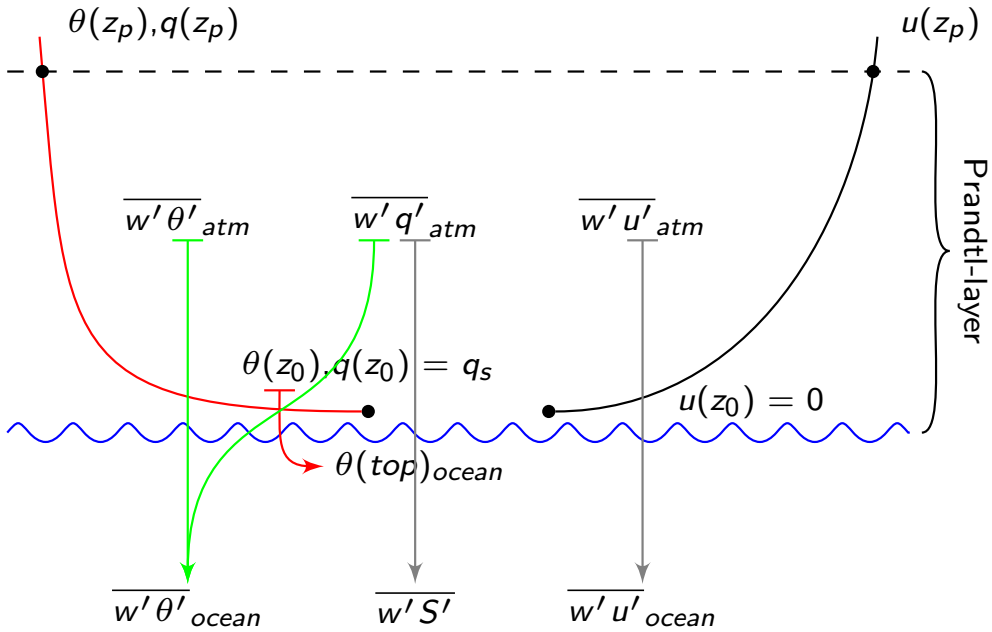

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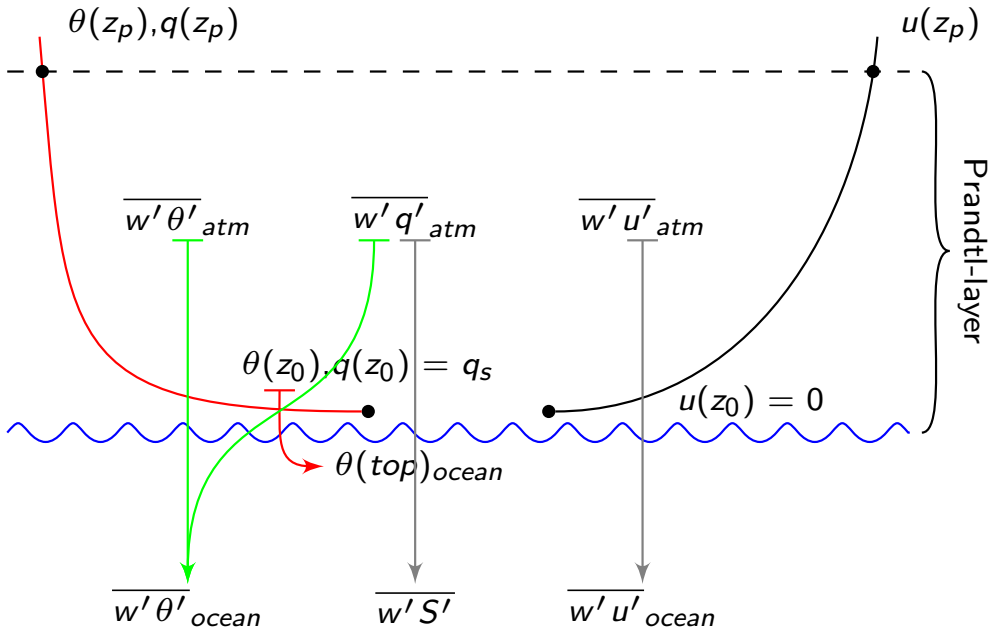

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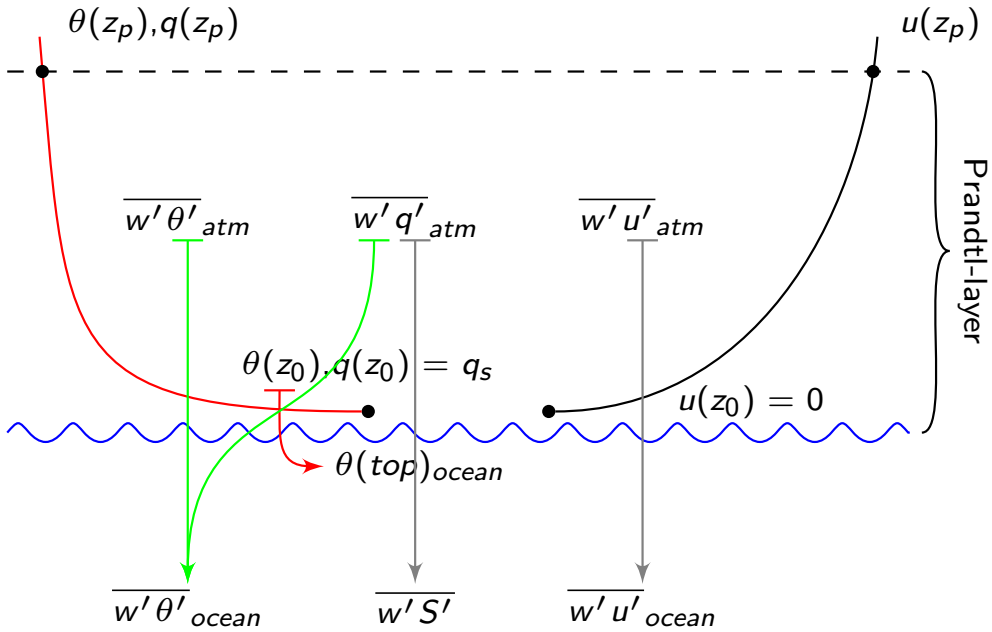
- no precipitation effects
- wave effects at the interface are not regarded
  ($z_0 \sim u_*^2$ easy to implement)



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PALM - Ocean-Atmosphere Coupling - Flux Equations

- ocean heat flux depends on atmospheric sensible AND latent heat flux (evaporation)

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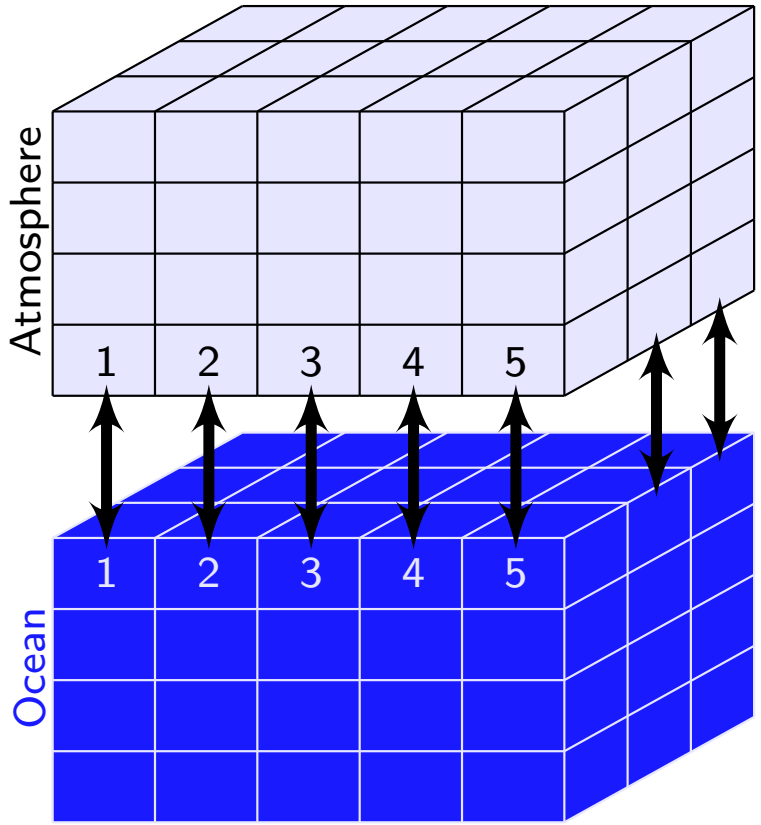

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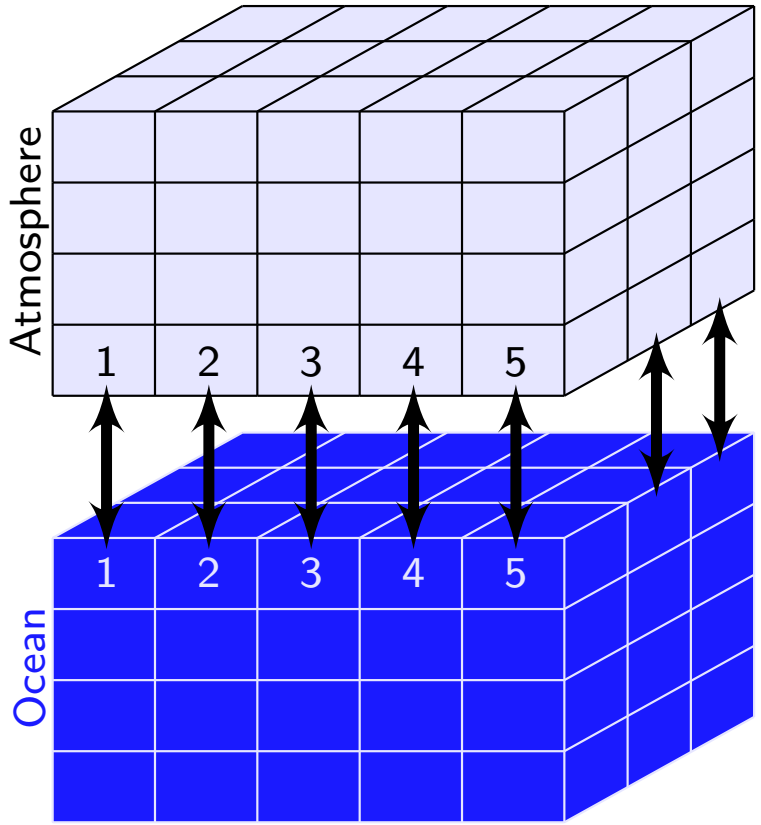

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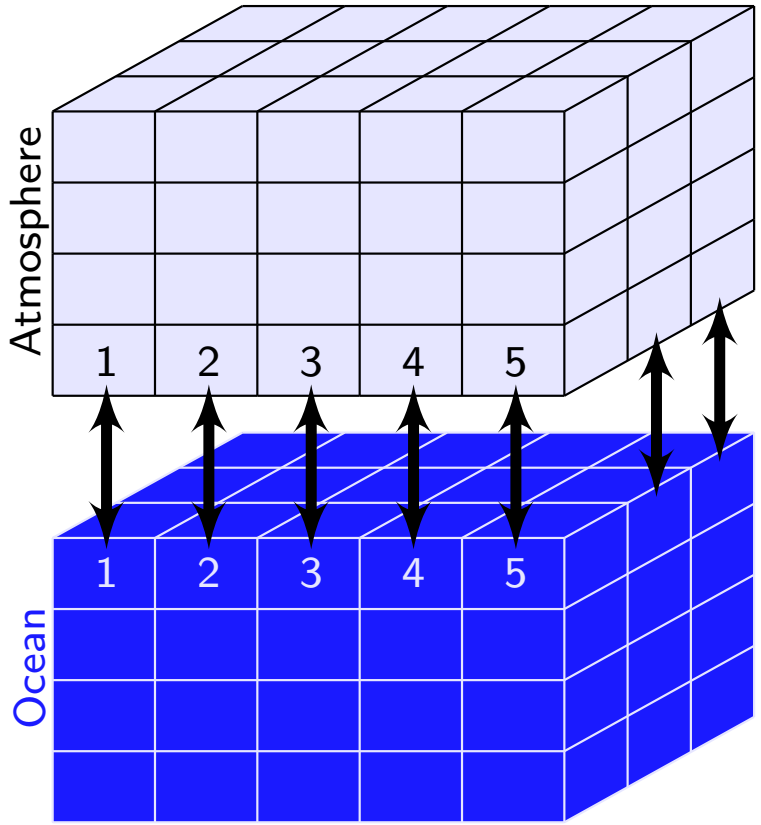

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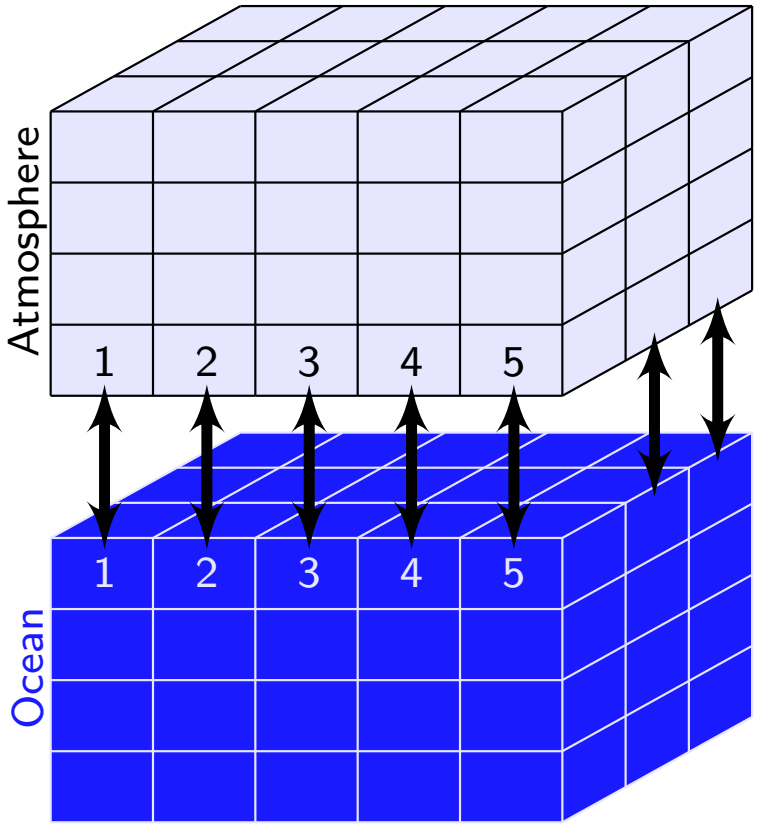

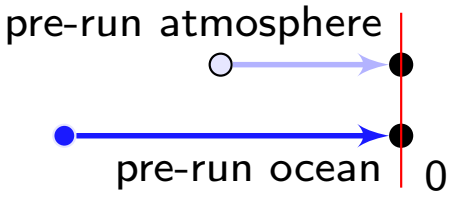

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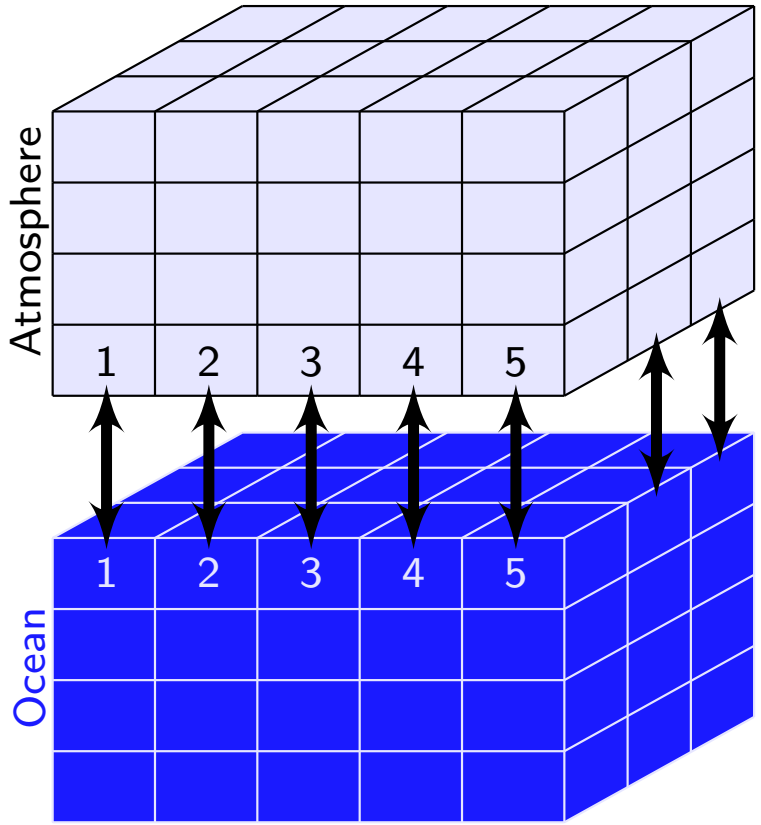

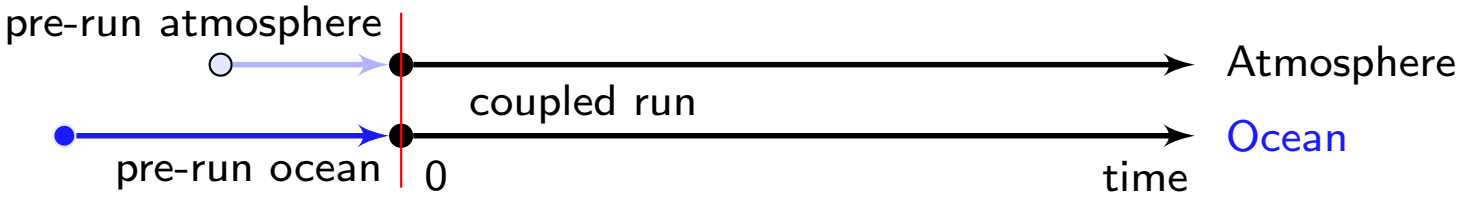

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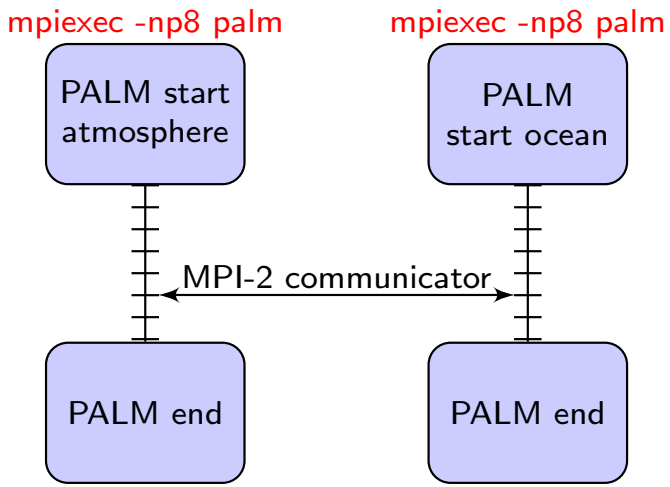

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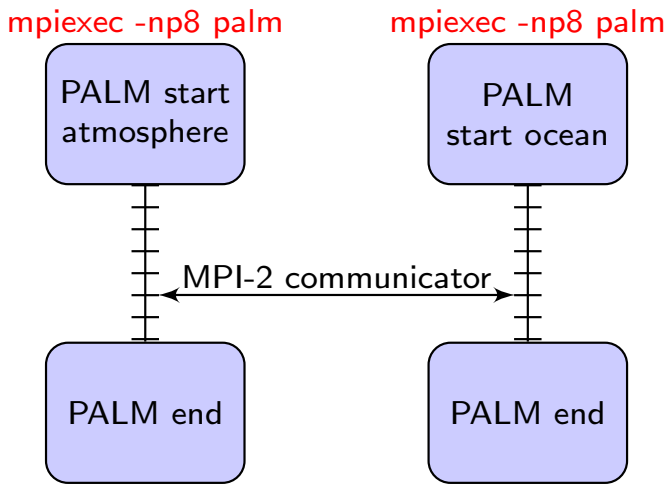

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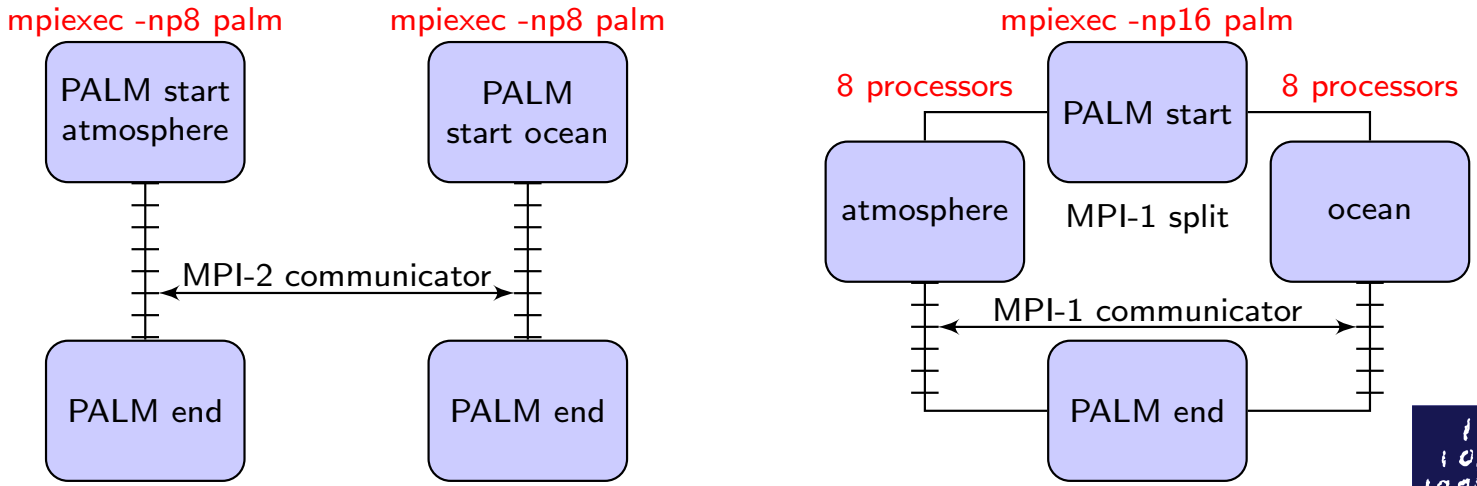
- MPI-1 starts only one executable, splits the total number of processors and calls the different models as subroutines.



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- Please carefully check the results and please also check the code.