Overview
CCLM-CPM climate simulation

CCLM CPM LISTS
(order by published year)

DOMAIN:
EUROPE

1. Hohenegger et al., **2008** & **2009**
2. Knote et al., **2010**
3. Langhans et al., **2012 a**,**b & 2013**
4. Prein et al., **2013**
5. Tolle et al., **2014**
6. Junk et al., **2014**
7. Ban et al., **2014** & **2015**
8. Fosser et al., **2015**
9. Brisson et al., **2015, 2016**

Not CCLM-CPM but others for East Asia Study

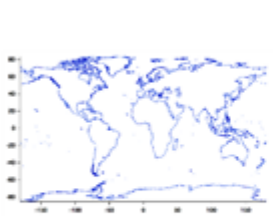
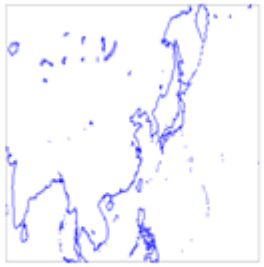
DOMAIN:
EAST ASIA, Yellow-Sea, JAPAN

1. S Kanada et al., **2013 (NHM)**
   * Tropical Cyclone study. 2km
2. E.K. Jin et al., **2016 (WRF)**
   * East Asia, but 9km
3. A. Murata et al., **2016 (NHM)**
   * Japan, 1.5km vs 2~4km
4. D. Li et al., **2016 (CCLM)**
   * Korea (yellow sea), 7km

For Korea region, it would be first study of convection-permitting (less than 4 km) climate simulation (CPCS) by CCLM

POSTECH CCLM-CPM PLAN

- Triple nested downscaling and simulation domain

ERA-INTERIM	CCLM		
			
(approximately, 80km)	(approximately, 25km)	(approximately, 12.5km)	(approximately, 3km)
Grids: 512 x 256	Grids: 396 x 245	Grids: 400 x 361	Grids: 800 x 722

- Experiment design
  - Evaluation (11year: 1990-2000)
  - Historical (11year: 1990-2000)
  - RCP26 (22 year: 2040-2050, 2090-2100)
  - RCP45 (22 year: 2040-2050, 2090-2100)
  - RCP85 (22 year: 2040-2050, 2090-2100)

- Boundary Forcing
  - ERA-INTERIM, MPI-ESM-LR

Major Questions

Different configuration following horizontal resolution.

*The others are applied identically with 25-km config. (Please check the attached File *or* ask me directly)

- **CCLM (0.22° x 0.22°) SETTING**
  - RUNCTL in **<cclm.job.tmpl>**
    - dt = 120,
  - PHYCTL in **<cclm.job.tmpl>**
    - lconv = .TRUE.,
      ninconv = 1,
      ltype_conv = 0, **(Tiedtke scheme)**
      lconf_avg =.TRUE.,
    - nincrad = 15,
  - DYNCTL in **<cclm.job.tmpl>**
    - lspecnudge = .TRUE.,
      yvarsn = U, V,
      pp_sn = 850,
      alpha_sn = 0.1.,
      isc_sn = 10,
      Jsc_sn = 6,
      ninscn = 5,
    - nincrad = 15,
    - rlwidth = 375000., (25 km * 15 grid)

- **CCLM (0.11° x 0.11°) SETTING**
  - RUNCTL in **<cclm.job.tmpl>**
    - dt = 60,
  - PHYCTL in **<cclm.job.tmpl>**
    - lconv = .TRUE.,
      ninconv = 2,
      ltype_conv = 0, **(Tiedtke scheme)**
      lconf_avg =.TRUE.,
    - nincrad = 30,
  - DYNCTL in **<cclm.job.tmpl>**
    - lspecnudge = .TRUE.,
      yvarsn = U, V,
      pp_sn = 850,
      alpha_sn = 0.1.,
      isc_sn = 20,
      Jsc_sn = 12,
      ninscn = 10,
    - nincrad = 15,
    - rlwidth = 187500., (12.5 km * 15 grid)

- **CCLM-CPM (0.027° x 0.027°) SETTING**
  - RUNCTL in **<cclm.job.tmpl>**
    - dt = 30,
  - PHYCTL in **<cclm.job.tmpl>**
    - nincrad = 60,
    - lconv = .TRUE., **(or shall I set .FALSE.,)**
      ninconv = 4,
      ltype_conv = 3, **(shallow Tiedtke scheme)**
      lconf_avg =.TRUE.,
  - DYNCTL in **<cclm.job.tmpl>**
    - lspecnudge = .FALSE., **(or shall I set .TRUE., according to other resolution config?)**
    - rlwidth = 42000., (2.8 km * 15 grid)