



RegCM5

Filippo Giorgi

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Contributors to the development of RegCM5 (in alphabetical order)

- E. Coppola, G. Giuliani, S. Abba Omar, S. Das, M. Garcia-Valdecasas Ojeda, R. Glazer, S. Mueller, E. Pichelli, F. Raffaele, J.A. Torres-Alavez (ICTP)
- J. Ciarlo, F. Di Sante, R. Nogherotto, M. Reale (INOGS)
- P. Malguzzi, P. Stocchi, S. Davolio, O. Drofa (ISAC-CNR)

EVOLUTION OF THE REGCM SYSTEM

- RegCM1 (Dickinson et al., CCH, 1989; Giorgi and Bates, MWR, 1989)
- RegCM2 (Giorgi et al., MWR, 1993a,b)
- RegCM2.5 (Special Issue of JGR 1999)
- RegCM3 (Pal et al., BAMS 2007, Special Issue of TAC 2006)
- RegCM4 (Giorgi et al., CR 2012, Special Issue of CR 2012)
- RegCM4-ES (Sitz et al., JAMES 2017)
- RegCM4-NH (Coppola et al., GMD 2021)
- RegCM5 (Giorgi et al. JGR, 2023)

The ICTP RegCM5

- **Dynamics:**

Hydrostatic (Giorgi et al. 1993a,b)

Non-Hydrostatic MM5

Non-Hydrostatic MOLOCH

- **Radiation:**

CCM3 (Kiehl 1996)

RRTM (Solmon)

- **Large-Scale Precipitation:**

SUBEX_(Pal et al 2000)

Nogherotto-Tompkins

WRS5

- **Cumulus convection:**

Grell (1993)

Anthes-Kuo (1977)

MIT (Emanuel 1991)

Tiedtke

Kain-Fritsch

Mixed convection

- **Planetary boundary layer:**

Modified Holtslag, Holtslag (1990)

UW-PBL (O'Brien et al. 2011)

- **Land Surface:**

BATS (Dickinson et al 1993)

SUB-BATS_(Giorgi et al 2003)

CLM (Steiner et al. 2009)

- **Ocean Fluxes**

BATS (Dickinson et al 1993)

Zeng (Zeng et al. 1998)

Diurnal SST

- **Configuration**

Adaptable to any region

Tropical belt configuration

- **Full parallelization**

RegCM5 coupled components

- **Coupled ocean**

MIT ocean model (Di Sante et al. 2020)

- **Interactive lake**

1D thermal lake mode (Hostetler et al. 1994; Small et al. 1999)

- **Interactive biosphere**

DVGM in CLM

- **Interactive hydrology**

CHYM hydrological model coupled interactively

- **Ocean biogeochemistry**

Coupling with BFM (Reale)

- **Aerosols:**

OC-BC-SO₄ (Solmon et al 2005)

Dust (Zakey et al 2006)

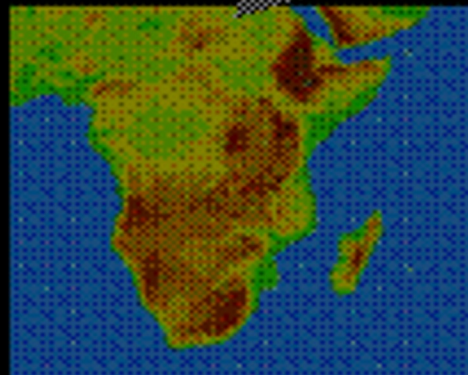
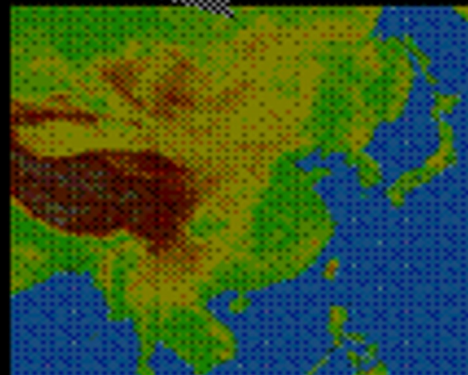
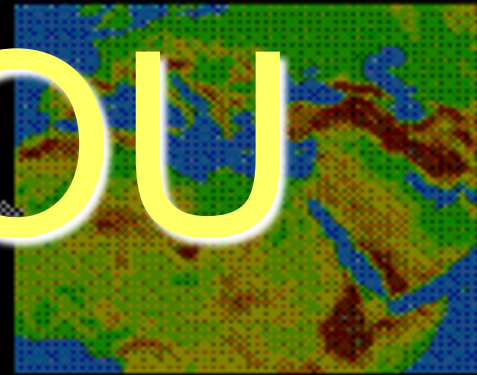
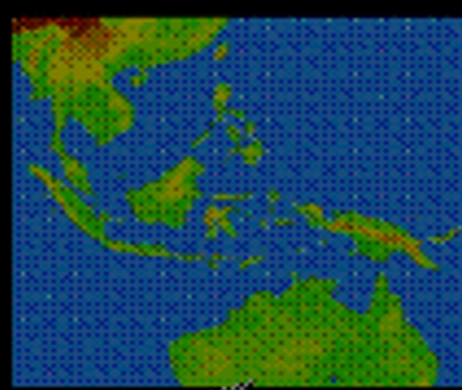
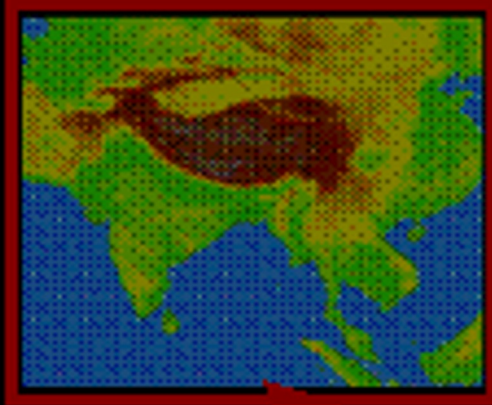
Sea Salt (Zakey et al. 2009)

Nitrates

Pollen (Li et al. 2016)

- **Gas phase chemistry:**

CBMZ + Sillmann solver (Shalaby et al. 2012)



THANK YOU

