

RT2B/RT3: Overview and links with RT1/RT2A

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Timescales:

Climate change (ACC)
Seasonal-to-decadal (s2d)

Spatial scales:

Global climate models

Regional climate models: WP2B.1

Statistical downscaling: WP2B.2

Forcing:

Emissions scenarios (SRES)

Reanalysis

Perturbed physics

Construction of probabilistic scenarios: WP2B.2 & WP2B.3

Monte Carlo, Bayesian, REA, weighting, scaling, etc. etc.

Probabilistic regional climate scenarios and tools

- RT3 meeting, 13-14 March 2006, Copenhagen
- 1st RT2B technical meeting: 14-16 June 2006
- Updated RT2B web site
- RT2B wiki
<http://www.cru.uea.ac.uk/projects/ensembles/pmwiki/pmwiki.php>
- Agreement on RCM domains, grids (RT3, D2B.1)
- DMI RCM data server set up
- Agreement on variables (consistent with RT2A)

Status Model Simulations RT3 (ERA@50) (2006/06/07)

Instituion	Model	Status Simulation	Status Archiving
DMI	HIRHAM	Finished	August
SMHI	RCA3	Finished	Mid August
KNMI	RCAO	July 2006	August/Sept.
ICTP	RegCM	Finished, but to be checked. In case of re-run: end of summer	End of summer
METO-HC	HadRM	??	??
CNRM	ALADIN-Climate (CNRM –RM4)	Finished	Expected on time
GKSS	CLM	Finished	End of July
MPIMET	REMO	Finished	End of August
UCLM	PROMES	Finished	End of May
INM	RCA	mid autumn	No date yet
met.no	HIRHAM	Finished	Mid June
CHMI/CUNI	ALADIN CY28T3	Finished	Late June/ early July
ETH	CLM	Finished	August

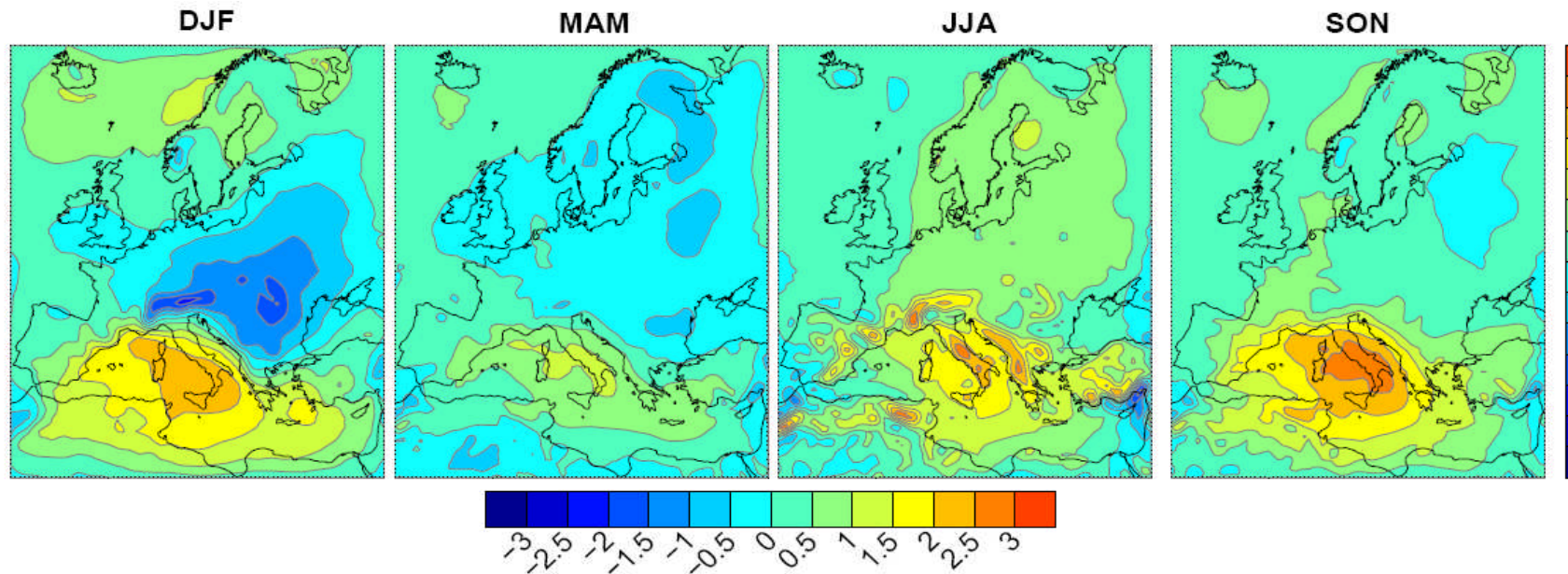
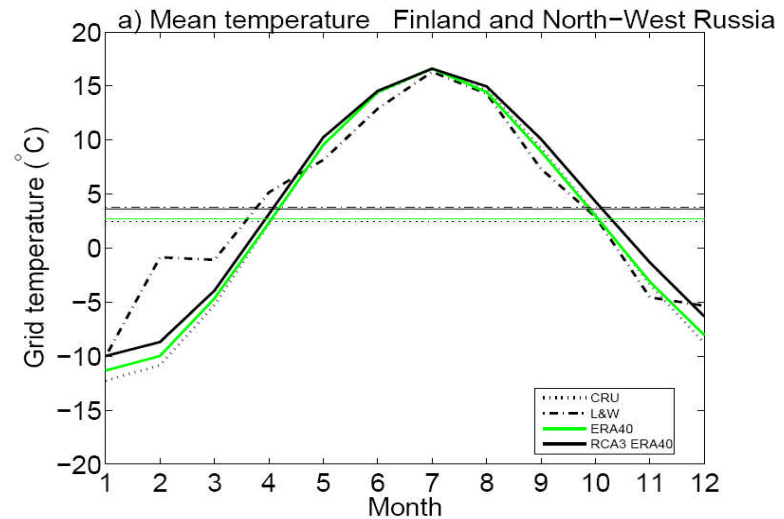
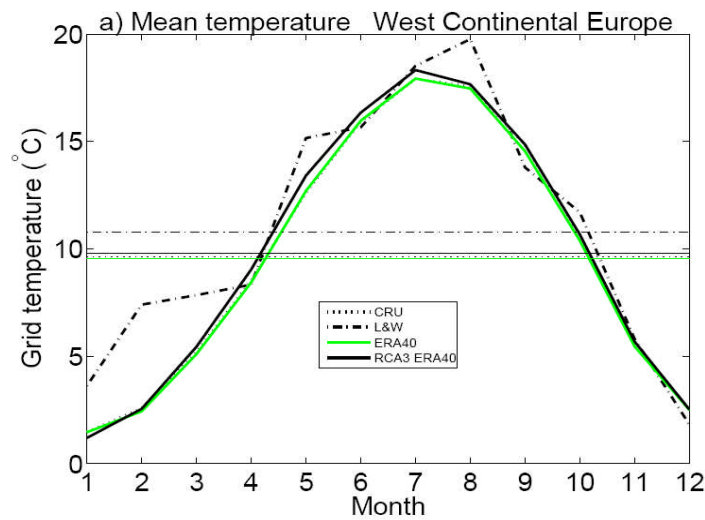


Figure 1. Seasonal MSLP-bias in one of the RT3 RCMs, compared to ERA-40 data for 1961-2000.



Then ERA@25 (February 2007)

And finally, WP2B.1 25 km climate change runs.....

RT3/RT2B links with RT1/RT2A, some background in terms of next Ds & Ms

RT3/WP3.3 – Design of RCM ensemble strategy

M3.6, Mo 24: Pairing of GCM and RCM.

D3.3.1 and Mm3.3, Mo 30: RCM-system for use in RT2B.

RT3/WP3.2 – Design and calibration of procedures to create probabilistic regional climate scenarios (cf. RT1 WP1.6)

D3.2.1 Mo 18: Definition of measures of reliability based on ability to simulate observed climate in hind-cast mode.

D3.2.2 Mo 30: RCM-specific weights based on their ability to simulate present climate.

RT2B/WP2B.1 – Control and future scenario runs using high-resolution RCMs

M2B.9: Start running the 25 km RCM simulations for 1950-2050/2100, Month 25

Proposed simulations with Global models and Regional models

Partner Name of the partner producing the simulations: for more detail refer to Table 6.9 in the DoW
Period period over which the results of the simulation will be available at 6-hourly intervals
Grid resolution approximate resolution of the grid where model results are stored grids (R) in ° for Gaussian grids (G), or in °longitude x °latitude for regular grids (R)
Number Levels Size of the ensemble of planned simulations number of levels in the vertical where the dynamical variables (U,V,T,q) will be stored at 6-hourly intervals M for storage on model levels, and P for storage on standard pressure levels
Completed approximate month.year when the simulations are expected to be completed
Notes see explanations below

RT2B 'Wish list'

Partner model resolution Notes	Regional models (RT2B)									
	METO-HC HadRMx	MPIMET REMO5.7	CNRM ALADIN	DMI	ETH	KNMI RACMO	ICTP	SMHI	UCLM PROMES	C4I RCA3
		25x25km	20x20 km			25x25km			25x25km	25x25km
		(d)	(c)							(e)

Global first stream simulations (RT2A)

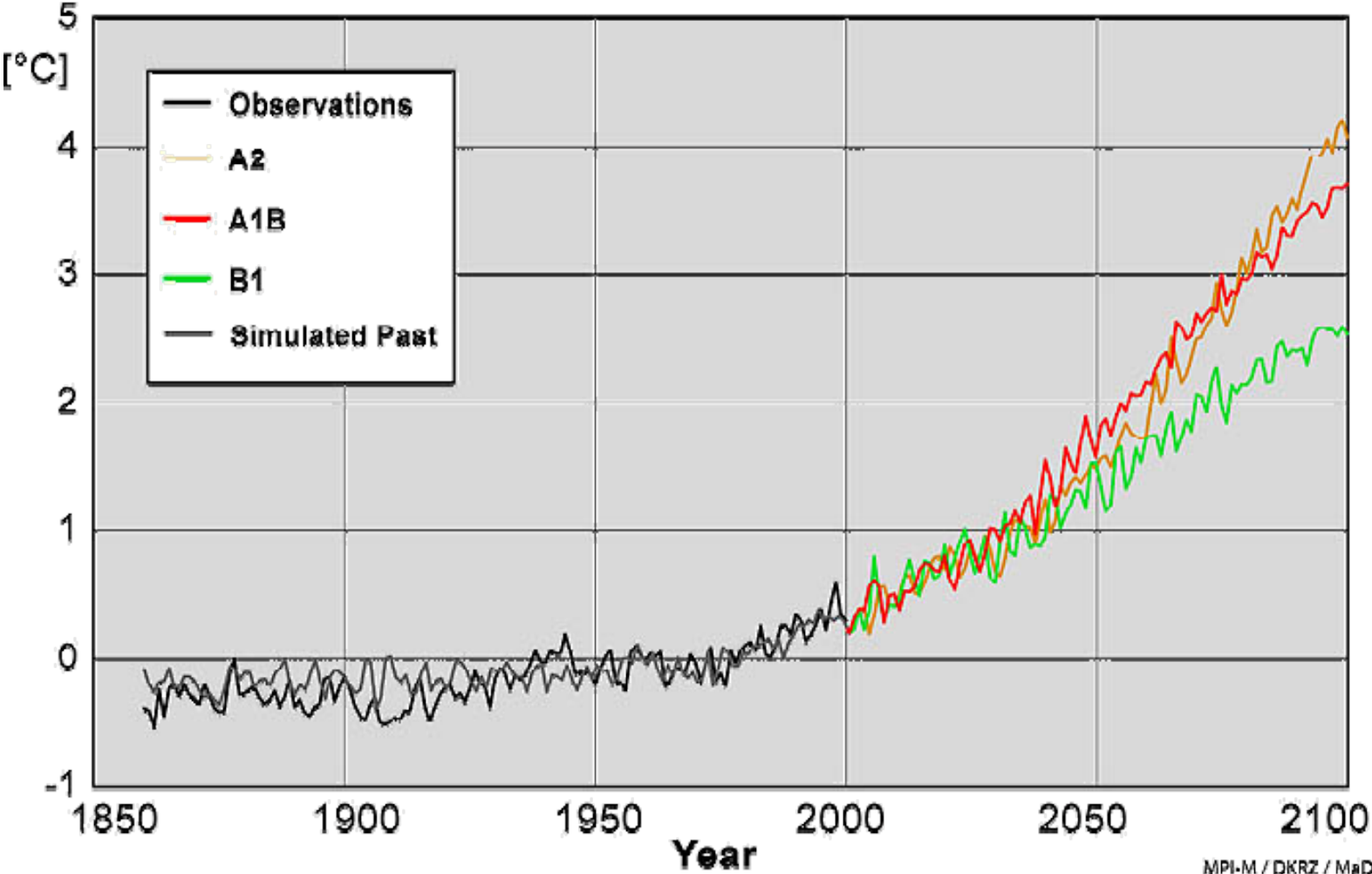
Partner	Period	Number	Grid Resolution	Levels completed	Notes
C20C3M					
METO-HC	1860-2000	1	R: 1.25x1.875°	17 (P)	May-05
MPIMET	1860-2000	3	G: 1.875°	31 (M)	yes
FUB	1860-2000	3	G: 3.75° (T30)	39 (M)	Feb-05 (a)
IPSL	1960-2000	1	R: 2.4x3.75°	19 (M)	Oct.2004
CNRM	1860-2000	1	G: 2.8125°	23 (P)	Dec.2004
CNRM	1950-2000	1	G: 2.8125°	45 (M)	Dec.2005
NERSC	1860-2000	1	G: 2.8125°	31 (M)	Dec.2004
A1B					
METO-HC	2000-2100	1	R: 1.25x1.875°	17 (P)	Mar-05
MPIMET	2000-2100	3	G: 1.875°	31 (M)	yes
DMI	2000-2100	1	G: 1.875°	31 (M)	Mar. 2005
FUB	2000-2100	3	G: 3.75° (T30)	39 (M)	Apr-05 (a)
IPSL	2000-2100	1	R: 2.4x3.75°	19 (M)	Dec.2004
CNRM	2000-2100	1	G: 2.8125°	23 (P)	Jan.2005
CNRM	2000-2050	1	G: 2.8125°	45 (M)	Dec.2005 (b)
NERSC	2000-2100	1	G: 2.8125°	31 (M)	Jan.2005
B1					
METO-HC	2000-2100	1	R: 1.25x1.875°	17 (P)	Dec-05
MPIMET	2000-2100	3	G: 1.875°	31 (M)	yes
FUB	2000-2100	3	G: 3.75° (T30)	39 (M)	Jun-05 (a)
IPSL	2000-2100	1	R: 2.4x3.75°	19 (M)	Dec.2004
CNRM	2000-2100	1	G: 2.8125°	23 (P)	Jan.2005
NERSC	2000-2100	1	G: 2.8125°	31 (M)	Jan.2005
A2					
METO-HC	2000-2100	1	R: 1.25x1.875°	17 (P)	Mar-05
MPIMET	2000-2100	3	G: 1.875°	31 (M)	yes
FUB	2000-2100	3	G: 3.75° (T30)	39 (M)	Sep-05 (a)
IPSL	2000-2100	1	R: 2.4x3.75°	19 (M)	Dec.2004
CNRM	2000-2100	1	G: 2.8125°	23 (P)	Jan.2005
NERSC	2000-2100	1	G: 2.8125°	31 (M)	Jan.2005

Some other recent decisions, and points to be addressed

Suggest, for the 20th Century, use of “all forcings” GCM runs rather than “anthropogenic forcing” ones.
As to the GCM-scenarios, concentrate on A1B-runs.

Global Air Temperature change calculated by ECHAM5-MPIOM

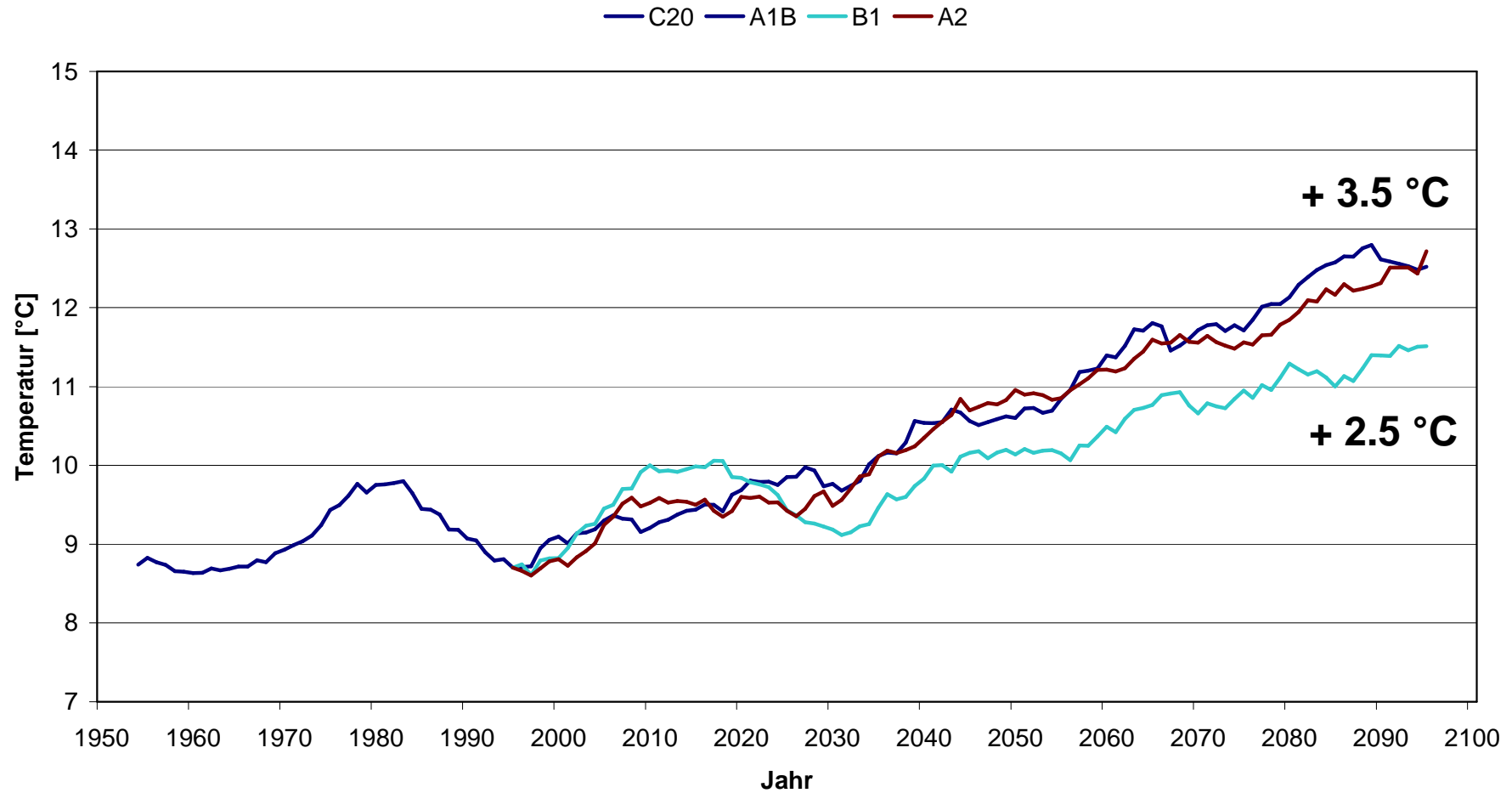
IPCC SRES Scenarios: Temperature Change relative to 1961-1990



Temperature: Germany

UBA domain, 10km x 10km

Jahresmitteltemperatur Deutschland (gleitendes 10 Jahresmittel)

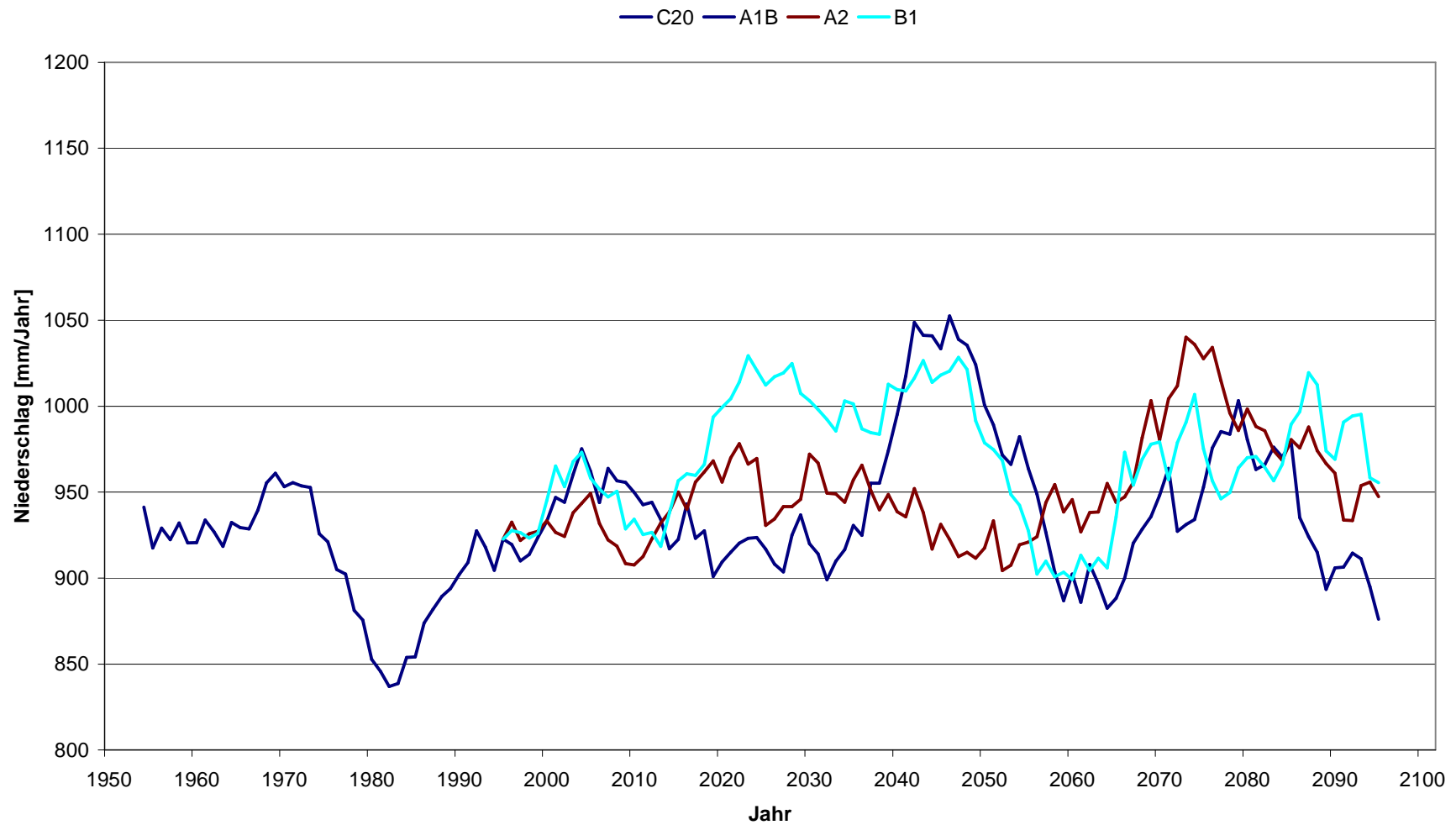


Precipitation: Germany



UBA domain, 10km x 10km

Jahresniederschlag Deutschland (gleitendes 10 Jahresmittel)



Recent decisions, and points to be addressed

Suggest, for the 20th Century, use of “all forcings” GCM runs rather than “anthropogenic forcing” ones.

As to the GCM-scenarios, concentrate on A1B-runs.

Set up a task force (RT3/WP3.3) to look into the regional performance of Ensembles GCMs; seek guidance from RT5 that has an activity on this; look forward to guidance from RT2A (Catch phrase: “*Should some GCM be excluded due to circulation or suchlike biases?*”)

Concentrate on 1 ensemble member per GCM/A1B in cases there are several; assume that all GCMs are to be sampled with at least 1 RCM.

So far no decision on the non-European regional domain (RT3/WP3.5). Western Africa (AMMA) is a strong candidate. To be resolved this year.

How to manage the technical details of acquiring the GCM data for the RCMs (boundary conditions)? Propose short test data sets to train with..., e.g. 5 years of control and 5 years of scenario per GCM/A1B.

Some key completed deliverables from RT2B

- D2B.2: Specification of datasets, sds methods, issues....
- D2B.8: Working paper on weighting
 - Summary from Athens
 - Proposed end-to-end demonstrations
 - Other weighting deliverables
 - Data sets
 - Recommendations and issues
- D2B.4: Prototype of downscaling web service
<http://www.meteo.unican.es/ensembles>

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D2B.2: Specification of datasets, sds methods, issues.....

D2B.4: Prototype of downscaling web service

D2B.8: Working paper on weighting

Two RT2B sds deliverables in progress (wiki)

D2B.12: Application of sds to s2d forecasts

D2B.14: Modification of sds for probabilistic forecasts

Inputs from RT1/RT2A

- Update on AOGCM availability – what is available from where/when
- Clarification of RT1 regional PDF outputs
- Simple explanation of how constructed!
- Qualitative/quantitative information about AOGCM performance (&/or from RT4/RT5?)
- Discussion on ‘probabilistic methods’
- *Is there anything you want from us?!*