



**PAL
MOD**

GERMAN
CLIMATE
MODELING
INITIATIVE

Newsletter July 2024

Dear PalMod members and friends,

thank you for attending the PalMod Kick-Off at DKRZ and making the event a successful start to Project Phase III!

You find the slides of the talks linked to the agenda here (internal part of the PalMod web pages): <https://www.palmod.de/group/palmod/kick-off-2024>

Moreover, here you can find the [Interview](#) that Gerrit gave to the BMBF on the occasion of the PalMod Phase III Kick - Off (in German).



1. M&D of PalMod Phase III due until 12/24

WG	WP	Due PM	Date	Responsible Institution	Task
CC	MCC2.2	6	01.12.23	MARUM	Inclusion of export routines into PaleoDataView for data to be deployed on PANGAEA
CC	DCC2.1	6	01.12.23	MARUM	Updated version of PDV with PANGAEA export routines
CC	WSCC3.1	6	01.12.23	Uni Tübingen	Kick-off workshop on model-intercomparison strategies, CC organisation in cooperation with WGs1-3
WG2	M2.1.8	9	01.03.24	MPI (TP3)	PalMod versions of JSBACH in MPI-ESM and AWI-ESM is updated with existing permafrost carbon module.
WG2	D.2.1.1	9	01.03.24	MPI(TP1)	Standardised setup of terrestrial C cycle and methane cycle distributed to PalMod users of MPI-ESM
CC	DCC2.2	9	01.03.24	MARUM	Upload of harmonized proxy data exported from PaleoDataView to PANGAEA
WG2	M2.2.4	12	01.06.24	MPI	Transient deglaciation simulations with different climate and ocean physics parameters or different ice sheet reconstruction.
WG2	M2.2.7	12	01.06.24	MPI	Ensemble simulations with perturbed initial conditions for abrupt events (Heinrich events, Bølling–Allerød warming, or Younger Dryas).
WG2	M2.2.11	12	01.06.24	MARUM	transient simulation of Heinrich stadial 1 as part of the simulation of the full last deglaciation (~21 ka BP to ~8 ka BP) with iCESM and dynamic ice sheets in WP1.1.
CC	MCC2.3	12	01.06.24	MARUM	Frontend design of proxy data portal for data products from PalMod
CC	DCC2.3	12	01.06.24	MARUM	Data portal with visualization functionality
CC	MCC3.1	12	01.06.24	Uni Tübingen	Inclusion in PTBox of the simulations, databases, and model-data comparison methods, available from Phase 2, Phase 3 and the wider community, and design of relevant Shiny apps for the PalMod App.
WG2	M2.1.4	15	01.09.24	MPI, AWI (TP2)	Standardised setup of terrestrial C cycle and methane cycle distributed to PalMod users of MPI-ESM
WG2	M2.2.1	15	01.09.24	AWI	Deglaciation experiments for the investigation of the effect of salinity of the deep ocean.
WG3	M3.1.1	15	01.09.24	MARUM	Evaluation of the fingerprint of abrupt climate change during key intervals of PalMod Phase III in data and models in multiple parameter space using tested metrics.
WG3	M3.1.2	15	01.09.24	Uni Bonn	Implementation of the model and applications on PalMod's curated pollen data compilations and climate reconstructions. Compilation and standardisation of the results following the DMP created during Phase II. Inclusion of data and method in PTBox.
WG3	D3.1.2	15	01.09.24	Uni Bonn	Mapping of the propagation of rapid climatic changes in different regions (e.g. North America, Europe, Asia) to identify leads and lags on land during abrupt events of the last glacial cycle (Glacial Inception, MIS3, Deglaciation). Model- data comparison to constrain large-scale patterns of climate change.
WG3	M3.3.3	15	01.09.24	Uni Tübingen	Model-based patchwork spectrum for temperature from daily to Glacial/Interglacial scales created and compared to forcing.
WG2	D2.1.2	18	01.12.24	MPI, AWI (TP2)	Simulated and reconstructed quantitative forest cover and comparison methods are handed over to the PTBox
WG2	M2.2.9	18	01.12.24	CAU	Transient CLIMBER-X deglaciation simulations with sinking schemes of varying complexity (Martin-type sinking, ballasting alone, viscosity effects, M4AGO-type aggregate size distribution and microstructure).
WG3	M3.3.1	18	01.12.24	AWI	Merging of regional $\delta^{18}\text{O}$ and temperature variability estimates across domains (marine, terrestrial and ice) finished.
CC	MCC2.4	18	01.12.24	MARUM	Programmed and tested backend software for visualization of proxy data products

Green = relax

Orange = slightly overdue

Red = significantly overdue

Let me know, when you reach a M or D, so I can mark it as achieved.

Please write a small report, informal note or send me a link to a publication connected to the M and D to make the M or D more benefit for all.

All documentation on M or D can be found here:

<https://www.palmod.de/group/palmod/palmod-iii-milestones-deliverables>

2. Overview PalMod DKRZ Compute Resources Consumption Q1 & Q2

Subproject	Requested CPU [n*h]	Used CPU [n*h]	Expired [n*h] in Q1 & Q2	Percentage of /work storage use (01.07.24)
WG1, ba0989	916.000	345.855	112.140	94%
WG2, bm1030	420.000	165.363	44.637	95%
DM, bk1192	9.986	1	4.493	43%
Total	1.345.986	511.219	161.275	

Please note:

- We will start writing the 2025 DKRZ resource application beginning of September
 - a high amount of expired compute resources in 2024, may lead to a disproportionately high cut in the next application round!
- We can always shift the resources between the projects on request

3. PalMod Paper in 2024

Ackermann, L., T. Rackow, Himstedt, K., Gierz, P., Knorr, G., and Lohmann, G.: A comprehensive Earth system model (AWI-ESM2.1) with interactive icebergs: effects on surface and deep-ocean characteristics. GMD, 17, 3279–3301, 2024.
<https://gmd.copernicus.org/articles/17/3279/2024/>

M. Willeit, R. Calov, S. Talento, R. Greve, J. Bernalles, V. Klemann, M. Bagge, and A. Ganopolski. (2024). Glacial inception through rapid ice area increase driven by albedo and vegetation feedbacks. Clim. Past, 20, 597–623, 2024.
<https://doi.org/10.5194/cp-20-597-2024>

Eicker, A., Schawohl, L., Middendorf, K., **Bagge, M.**, Jensen, L., & Dobsław, H. (2024). Influence of GIA uncertainty on climate model evaluation with GRACE/GRACE-FO satellite gravimetry data. Journal of Geophysical Research: Solid Earth, 129, e2023JB027769. <https://doi.org/10.1029/2023JB027769>

Schannwell, C., Mikolajewicz, U., Kapsch, M.-L., Ziemen, F. (2024). A mechanism for reconciling the synchronisation of Heinrich events and Dansgaard-Oeschger cycles. Nature Communications 15, 2961, <https://doi.org/10.1038/s41467-024-47141-7>

Weitzel, N., Andres, H., Baudouin, J.-P., Kapsch, M.-L., Mikolajewicz, U., Jonkers, L., Bothe, O., Ziegler, E., Kleinen, T., Paul, A., and Rehfeld, K.: Towards spatio-temporal comparison of

simulated and reconstructed sea surface temperatures for the last deglaciation, *Clim. Past*, 20, 865–890, <https://doi.org/10.5194/cp-20-865-2024>, 2024.

Meister, P., Alexandre, A., Bailey, H., Barker, P., Biskaborn, B.K., Broadman, E., Cartier, R., Chaplign, B., Couapel, M., Dean, J.R., Diekmann, B., Harding, P., Henderson, A.C.G., Hernandez, A., **Herzschuh, U.**, Kostrova, S.S., Lacey, J., Leng, M. J., Lücke, A., Mackay, A.W., Magyari, E. K., Narancic, B., Porchier, C., Rosqvist, G., Shemesh, A., Sonzogni, C., Swann, G.E.A., Sylvestre, F., and **Meyer, H.** (2024). A global compilation of diatom silica oxygen isotope records from lake sediment – trends, and implications for climate reconstruction. *Climate of the Past* (cp-2022-96). <https://doi.org/10.5194/cp-20-363-2024>

Köhler, P. and Mulitza, S.: No detectable influence of the carbonate ion effect on changes in stable carbon isotope ratios ($\delta^{13}\text{C}$) of shallow dwelling planktic foraminifera over the past 160 kyr, *Clim. Past*, 20, 991–1015, <https://doi.org/10.5194/cp-20-991-2024>, 2024.

Niu, L., Knorr, G., Krebs-Kanzow, U. et al. Rapid Laurentide Ice Sheet growth preceding the Last Glacial Maximum due to summer snowfall. *Nat. Geosci.* <https://doi.org/10.1038/s41561-024-01419-z>, 2024

Butzin, M., **Ye, Y., Völker, C.**, Gürses, Ö., Hauck, J., and **Köhler, P.:** Carbon isotopes in the marine biogeochemistry model FESOM2.1-REcoM3, *Geosci. Model Dev.*, 17, 1709–1727, <https://doi.org/10.5194/gmd-17-1709-2024>, 2024.