

FACE-MDS Community Publications

Papers developed as part of the FACE-MDS project or in close collaboration with partner projects.

2025

Hogan, J.A., Lichstein, J.W., Helmer, E.H., Craig, M.E., Fricke, E., Henrich, V., Kannenberg, S.A., Koven, C.D., Goldewijk, K.K., Lapola, D.M., Li, Y., Malhi, Y., Quinn, J., Roe, S., Terrer, C., Vilanova, E., Walker, A.P., Zhu, K., Ellis, E.C., 2025. **Anthromes and forest carbon responses to global change.** *PLANTS, PEOPLE, PLANET* 2025. <https://doi.org/10.1002/ppp3.10609>

Walker, A.P., Obermeier, W.A., Pongratz, J., Friedlingstein, P., Koven, C.D., Schwingshackl, C., Sitch, S., O'Sullivan, M., 2025. **Harmonizing direct and indirect anthropogenic land carbon fluxes indicates a substantial missing sink in the global carbon budget since the early 20th century.** *PLANTS, PEOPLE, PLANET* 2025. <https://doi.org/10.1002/ppp3.10619>

2024

Norby, R.J., Warren, J.M., Iversen, C.M., Walker, A.P., Childs, J., 2024. **Getting allometry right at the Oak Ridge free-air CO₂ enrichment experiment: Old problems and new opportunities for global change experiments.** *PLANTS, PEOPLE, PLANET* 6, 1480–1489. <https://doi.org/10.1002/ppp3.10565>

Palmroth, S., Kim, D., Maier, C.A., Medvigy, D., Walker, A.P., Oren, R., 2024. **Increased leaf area index and efficiency drive enhanced production under elevated atmospheric [CO₂] in a pine-dominated stand showing no progressive nitrogen limitation.** *Global Change Biology* 30, e17190. <https://doi.org/10.1111/gcb.17190>

2022

Norby, R.J., Warren, J.M., Iversen, C.M., Childs, J., Jawdy, S.S., Walker, A.P., 2022. **Forest stand and canopy development unaltered by 12 years of CO₂ enrichment.** *Tree Physiology*. 229, 2413–2445. [doi:10.1093/treephys/tpab107](https://doi.org/10.1093/treephys/tpab107).

Simmonds, M.B., Riley, W.J., Agarwal, D.A., Chen, X., Cholia, S., Crystal-Ornelas, R., Coon, E.T., Dwivedi, D., Hendrix, V.C., Huang, M., Jan, A., Kakalia, Z., Kumar, J., Koven, C.D., Li, L., Melara, M., Ramakrishnan, L., Ricciuto, D.M., Walker, A.P., Zhi, W., Zhu, Q., Varadharajan, C., 2022. **Guidelines for Publicly Archiving Terrestrial Model Data to Enhance Usability, Intercomparison, and Synthesis.** *Data Science Journal* 21, 3. <https://doi.org/10.5334/dsj-2022-003>

2021

Walker, A.P., De Kauwe, M.G., Bastos, A., Belmecheri, S., Georgiou, K., Keeling, R.F., McMahon, S.M., Medlyn, B.E., Moore, D.J.P., Norby, R.J., Zaehle, S., Anderson-Teixeira, K.J., Battipaglia, G., Brien, R.J.W., Cabugao, K.G., Cailleret, M., Campbell, E., Canadell, J.G., Ciais, P., Craig, M.E., Ellsworth, D.S., Farquhar, G.D., Fatichi, S., Fisher, J.B., Frank, D.C., Graven, H., Gu, L., Haverd, V., Heilman, K., Heimann, M., Hungate, B.A., Iversen, C.M., Joos, F., Jiang, M., Keenan, T.F., Knauer, J., Körner, C., Leshyk, V.O., Leuzinger, S., Liu, Y., MacBean, N., Malhi, Y., McVicar, T.R., Penuelas, J., Pongratz, J., Powell, A.S., Riutta, T., Sabot, M.E.B., Schleucher, J., Sitch, S., Smith, W.K., Sulman, B., Taylor, B., Terrer, C., Torn, M.S., Treseder, K.K., Trugman, A.T., Trumbore, S.E., Mantgem, P.J. van, Voelker, S.L., Whelan, M.E., Zuidema, P.A., 2021. **Integrating the evidence for a terrestrial carbon sink caused by increasing atmospheric CO₂**. *New Phytologist* 229, 2413–2445. doi:10.1111/nph.16866

2020

McDowell, N.G., Allen, C.D., Anderson-Teixeira, K., Aukema, B.H., Bond-Lamberty, B., Chini, L., Clark, J.S., Dietze, M., Grossiord, C., Hanbury-Brown, A., Hurtt, G.C., Jackson, R.B., Johnson, D.J., Kueppers, L., Lichstein, J.W., Ogle, K., Poulter, B., Pugh, T.A.M., Seidl, R., Turner, M.G., Uriarte, M., Walker, A.P., Xu, C., 2020. **Pervasive shifts in forest dynamics in a changing world**. *Science* 368. doi:10.1126/science.aaz9463

Wilcox, K.R., Komatsu, K.J., Avolio, M.L., 2020. **Improving collaborations between empiricists and modelers to advance grassland community dynamics in ecosystem models**. *New Phytologist* 228, 1467–1471. doi:10.1111/nph.16900

2019

Fleischer, K., Rammig, A., Kauwe, M.G.D., Walker, A.P., Domingues, T.F., Fuchslueger, L., Garcia, S., Goll, D.S., Grandis, A., Jiang, M., Haverd, V., Hofhansl, F., Holm, J.A., Kruijt, B., Leung, F., Medlyn, B.E., Mercado, L.M., Norby, R.J., Pak, B., Randow, C. von, Quesada, C.A., Schaap, K.J., Valverde-Barrantes, O.J., Wang, Y.-P., Yang, X., Zaehle, S., Zhu, Q., Lapola, D.M., 2019. **Amazon forest response to CO₂ fertilization dependent on plant phosphorus acquisition**. *Nature Geoscience* doi:10.1038/s41561-019-0404-9

Jiang, M., Zaehle, S., Kauwe, M.G.D., Walker, A.P., Caldararu, S., Ellsworth, D.S., Medlyn, B.E., 2019. **The quasi-equilibrium framework revisited: analyzing long-term CO₂ enrichment responses in plant–soil models**. *Geoscientific Model Development* 12, 2069–2089. doi:10.5194/gmd-12-2069-2019

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2017

Ryan, E.M., Ogle, K., Peltier, D., Walker, A.P., De Kauwe, M.G., Medlyn, B.E., Williams, D.G., Parton, W., Asao, S., Guenet, B., Harper, A.B., Lu, X., Luus, K.A., Zaehle, S., Shu, S., Werner, C., Xia, J., Pendall, E., 2017. **Gross primary production responses to warming, elevated CO₂, and irrigation: quantifying the drivers of ecosystem physiology in a semiarid grassland.** *Global Change Biology* 23, 3092–3106. doi:10.1111/gcb.13602

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Norby, R.J., Kauwe, M.G.D., Walker, A.P., Werner, C., Zaehle, S., Zak, D.R., 2017. **Comment on “Mycorrhizal association as a primary control of the CO₂ fertilization effect.”** *Science* 355, 358–358. doi:10.1126/science.aai7976

2016

Medlyn, B.E., De Kauwe, M.G., Zaehle, S., Walker, A.P., Duursma, R.A., Luus, K., Mishurov, M., Pak, B., Smith, B., Wang, Y.-P., Yang, X., Crous, K.Y., Drake, J.E., Gimeno, T.E., Macdonald, C.A., Norby, R.J., Power, S.A., Tjoelker, M.G., Ellsworth, D.S., 2016. **Using models to guide field experiments: a priori predictions for the CO₂ response of a nutrient- and water-limited native Eucalypt woodland.** *Global Change Biology* 22, 2834–2851. doi:10.1111/gcb.13268

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Medlyn, B.E., Zaehle, S., De Kauwe, M.G., Walker, A.P., Dietze, M.C., Hanson, P.J., Hickler, T., Jain, A.K., Luo, Y., Parton, W.J., Prentice, I.C., Thornton, P.E., Wang, S., Wang, Y.-P., Weng, E., Iversen, C.M., McCarthy, H.R., Warren, J.M., Oren, R., Norby, R.J., 2015. **Using ecosystem experiments to improve vegetation models** *Nature Climate Change* 5, 528–534. doi:10.1038/nclimate2621. [pdf]

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De Kauwe, M.G., Medlyn, B.E., Zaehle, S., Walker, A.P., Dietze, M.C., Wang, Y.-P., Luo, Y., Jain, A.K., El-Masri, B., Hickler, T., Wårlind, D., Weng, E., Parton, W.J., Thornton, P.E., Wang, S., Prentice, I.C., Asao, S., Smith, B., McCarthy, H.R., Iversen, C.M., Hanson, P.J., Warren, J.M., Oren, R., Norby, R.J., 2014. **Where does the carbon go? A model–data intercomparison of vegetation carbon allocation and turnover processes at two temperate forest free-air CO₂ enrichment sites.** *New Phytologist* 203, 883–899. doi:10.1111/nph.12847

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