YUANZHI YAO

Ph.D.

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**RESEARCH INTERESTS:**

* Earth system modeling
* Hydrology
* Geographical Information Science (GIS)
* Topographic analysis
* Geo-computing
* Water quality

**EDUCATION:**

**Ph.D.** Dec 2019. Major: Earth system science, School of forestry and wildlife science, Auburn University. “Greenhouse Gas Emissions from Inland Waters in the Conterminous United States: a Process-based Modeling Study”. Supervisor: Hanqin Tian

**M.S.** June 2010. Major: Geographical Information Science (GIS), Department of Geography, Sun Yat-sen University. “Research on modeling technology in basin visual simulation based on OpenGL”. Supervisor: Yangbo Chen

**B.S.** June 2008. Major: Geographical Information Science (GIS), Department of Geography, Chengdu University of Technology. “The Design and Implementation for the Fundamental GIS in Chengdu city based on MO”.

**PROFESSIONAL EXPERIENCE:**

**Assistant Engineer,** 2010 – 2014, Institute of mountain hazard and environment.

**PEER REVIEWED JOURNAL PAPERS:**

**Yao, Y.,** Tian, H., Shi, H., Pan, S., Xu, R., Pan, N. and Canadell, J.G., 2019. Increased global nitrous oxide emissions from streams and rivers in the Anthropocene. Nature Climate Change, pp.1-5.

Friedrichs, M.A., St‐Laurent, P., Xiao, Y., Hofmann, E., Hyde, K., Mannino, A., Najjar, R.G., Narváez, D.A., Signorini, S.R., Tian, H.,Wilkin, J., **Yao, Y.,** and Xue, J., 2019. Ocean circulation causes strong variability in the Mid‐Atlantic Bight nitrogen budget. Journal of Geophysical Research: Oceans, 124(1), pp.113-134.

Signorini, S.R., Mannino, A., Friedrichs, M.A., St‐Laurent, P., Wilkin, J., Tabatabai, A., Najjar, R.G., Hofmann, E.E., Da, F., Tian, H. and **Yao, Y.,** 2019. Estuarine dissolved organic carbon flux from space: With application to Chesapeake and Delaware Bays. Journal of Geophysical Research: Oceans, 124(6), pp.3755-3778.

**Yao, Y**. and Shi, X., 2015. Alternating scanning orders and combining algorithms to improve the efficiency of flow accumulation calculation. International Journal of Geographical Information Science, 29(7), pp.1214-1239.

**OTHER PUBLICATIONS:**

Gang, C., Tian, H., Pan, S., Shi, H., Wang, Z., **Yao, Y.**, Bian, Z., Pan, N. and Xu, R., 2019, December. Impacts of Land Conversion on Soil Organic Carbon and Nitrogen Stock: Magnitude and Uncertainties. In AGU Fall Meeting 2019. AGU.

Gang, C., Tian, H., Pan, S., **Yao, Y.**, Bian, Z. and Xu, R., 2019, November. Impacts of hurricanes on forest carbon loss in the coastal US between 2000 and 2018. In 2019 CERF Biennial Conference. CERF.

Hinson, K., Friedrichs, M.A., Bhatt, G., Najjar, R.G., Herrmann, M., Tian, H. and **Yao, Y.**, 2019, November. Sensitivity of projected Chesapeake Bay hypoxia to climate model, downscaling method, and watershed model. In 2019 CERF Biennial Conference. CERF.

Pan, S., Bian, Z., **Yao, Y.**, Tian, H., Friedrichs, M.A., Najjar, R.G. and Hofmann, E., 2019, November. Changes in Nitrogen loading from the Chesapeake Bay watershed since 1900: magnitude and attribution. In 2019 CERF Biennial Conference. CERF.

Bian, Z., Pan, S., **Yao, Y.** and Tian, H., 2019, November. Carbon fluxes across terrestrial and aquatic systems: A process-based modeling study in Mobile River Basin. In 2019 CERF Biennial Conference. CERF.

Xu, R., Tian, H., Pan, S., **Yao, Y.**, Cai, W.J., Hopkinson, C.S., Justic, D., Lohrenz, S.E., Lu, C., Ren, W. and Yang, J., 2019, November. Nitrogen loading to the Gulf of Mexico from Mississippi/Atchafalaya River Basin: A process-based modeling assessment. In 2019 CERF Biennial Conference. CERF.

**Yao, Y.**, Tian, H., Pan, S., Xu, R. and Bian, Z., 2019, November. Evaluating the Long-term Effect of Small Dams on Regional Hydrological Response to Climate Change. In 2019 CERF Biennial Conference. CERF.

**Yao, Y.**, Tian, H., Shi, H., Pan, S. and Xu, R., 2018, December. Global nitrous oxide emissions from streams and rivers: A process-based modeling study. In AGU Fall Meeting Abstracts.

Qin, X., Zhang, J., Shi, H., **Yao, Y.**, Pan, S. and Tian, H., 2018, December. Attributing Relative Contributions of Nitrification and Denitrification to Global Nitrous Oxide Production from Soils. In AGU Fall Meeting Abstracts.

Hinson, K., Friedrichs, M.A., Bhatt, G., Herrmann, M., Najjar, R., Tian, H., **Yao, Y.** and St-Laurent, P., 2018, December. Warmer Waters Welcome Increased Nutrient Loading: Linking Effects of Future Climate Change to Chesapeake Bay Hypoxia. In AGU Fall Meeting Abstracts.

Shi, H., Tian, H., **Yao, Y.** and Pan, S., 2018, December. Effects of cyclic freezing-thawing on greenhouse gas emissions in permafrost regions. In AGU Fall Meeting Abstracts.

St-Laurent, P., Friedrichs, M.A., Xiao, Y., Hofmann, E.E., Hyde, K., Mannino, A., Najjar, R., Narvaez, D., Signorini, S.R., Tian, H. and Wilkin, J., **Yao, Y.,** and Xue, J., 2018, December. Ocean Circulation Causes Strong Variability in Mid-Atlantic Bight Net Community Production. In AGU Fall Meeting Abstracts.

Friedrichs, M.A., St-Laurent, P., Najjar, R.G., Shadwick, E.H., Tian, H. and **Yao, Y.**, 2018, December. Impacts of Changes in Watershed Nutrient Inputs and Climate on Carbon Cycling in Chesapeake Bay. In AGU Fall Meeting Abstracts.

Tian, H., Zhang, B., Xu, R., Yang, J., **Yao, Y.**, Pan, S., Lohrenz, S.E., Cai, W.J., He, R., Najjar, R.G. and Friedrichs, M.A., 2017, December. Quantifying and predicting historical and future patterns of carbon fluxes from the North American Continent to Ocean. In AGU Fall Meeting Abstracts.

**Yao, Y.**, Tian, H., Zhang, B., Pan, S., Najjar, R., Friedrichs, M.A. and Hofmann, E.E., 2017, December. The representation of stream water temperature in the dynamic land ecosystem model and its applications to Chesapeake and Delaware Bay Watersheds. In AGU Fall Meeting Abstracts.

Friedrichs, M.A., Kaufman, D.E., Najjar, R., Tian, H., Zhang, B. and **Yao, Y.**, 2016, February. Changes in Chesapeake Bay Hypoxia over the Past Century. In American Geophysical Union, Ocean Sciences Meeting 2016, abstract# AH41A-02.

**Yao, Y**., Tao, H. and Shi, X., 2012, June. Multi-type sweeping for improving the efficiency of flow accumulation calculation. In 2012 20th International Conference on Geoinformatics (pp. 1-4). IEEE.

**REVIEWER**

Frontiers of Earth Science

Journal of Mountain Science

**PROFESSIONAL MEMBERSHIPS**

American Geophysical Union (AGU)

Coastal & Estuarine Research Federation (CERF)

The International Association of Chinese Professional in Geographic Information Science

(CPGIS)