

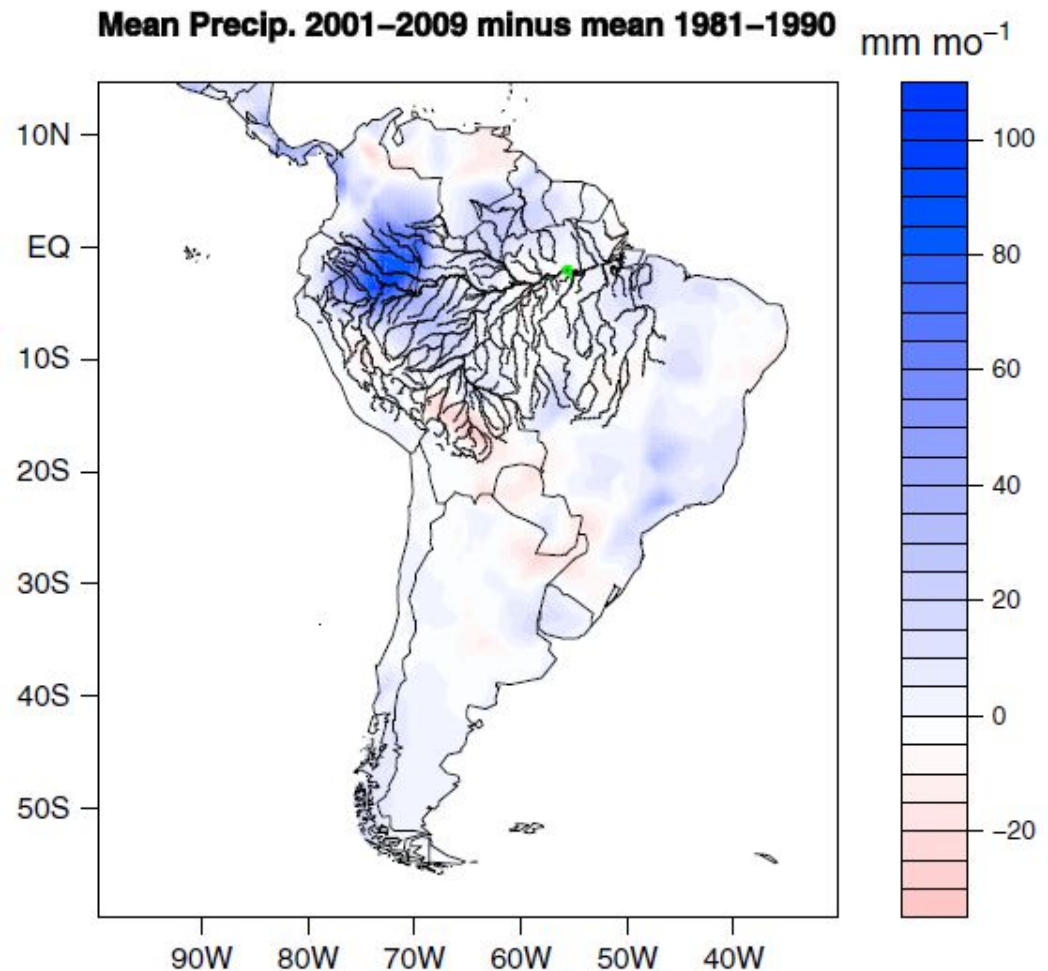
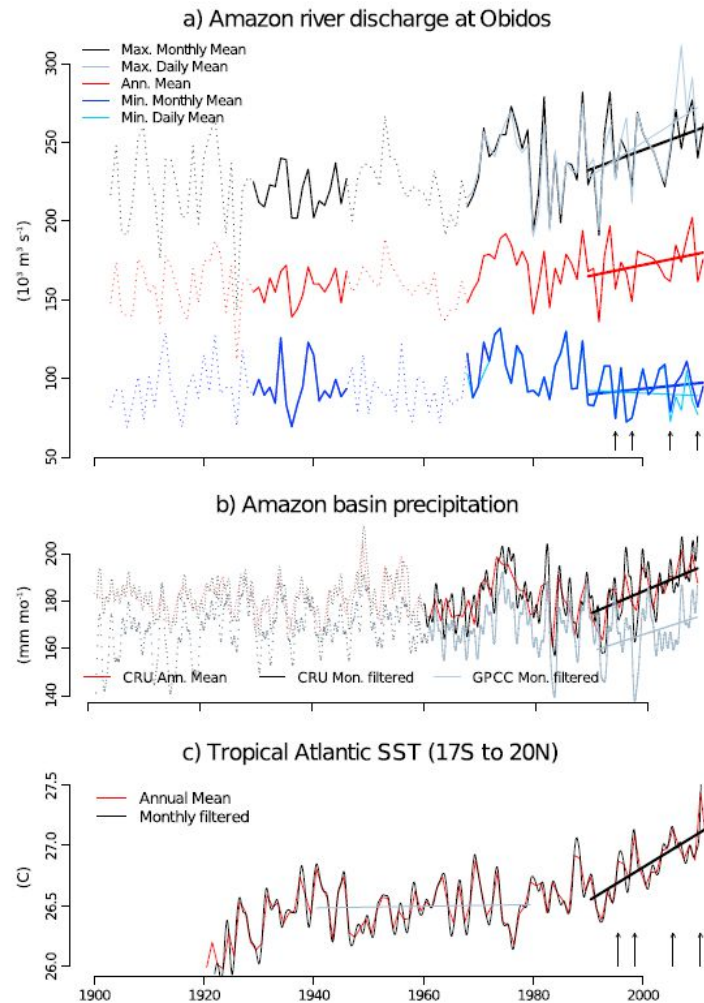
# Recent increase of river-floodplain suspended sediment exchange in a reach of the lower Amazon River

**Conrado Rudorff**

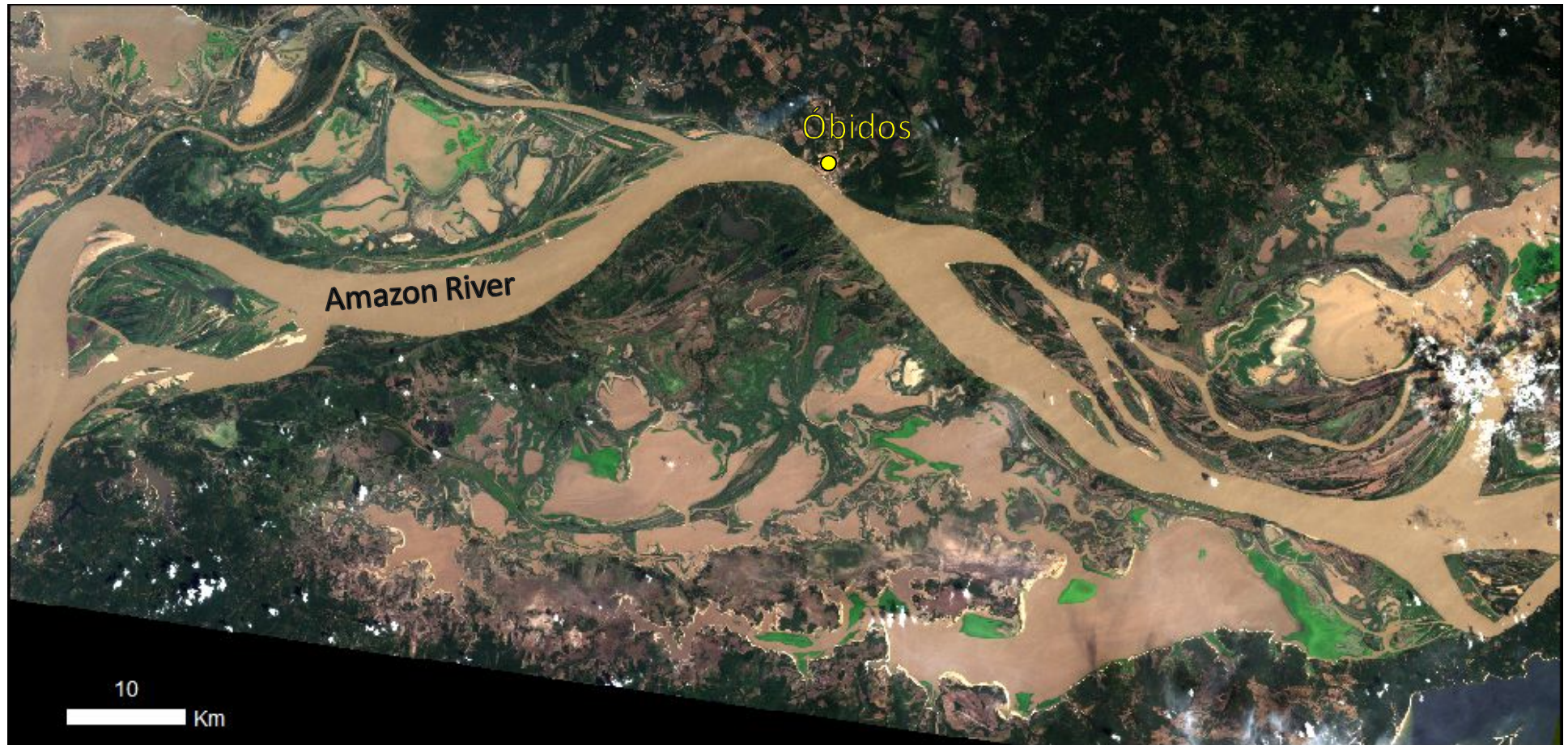
Centro Nacional de Monitoramento e Alerta de Desastres Naturais  
(CEMADEN)

7th HYBAM Scientific Meeting  
6-10 November, Niterói, Brazil

# Recent hydrological shift or oscillation



# The Curuai Floodplain - low water



Landsat 7 image (12/12/2001)



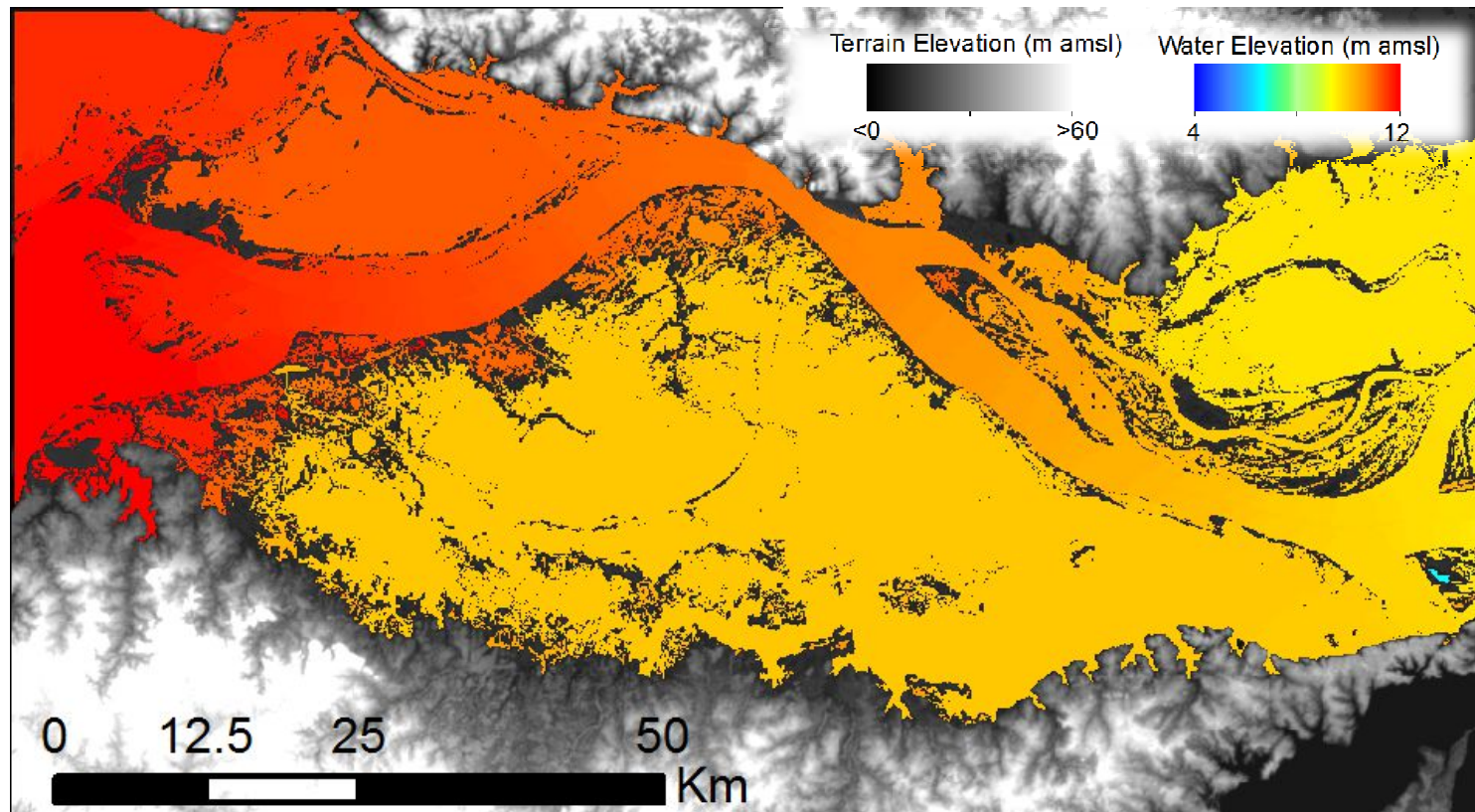
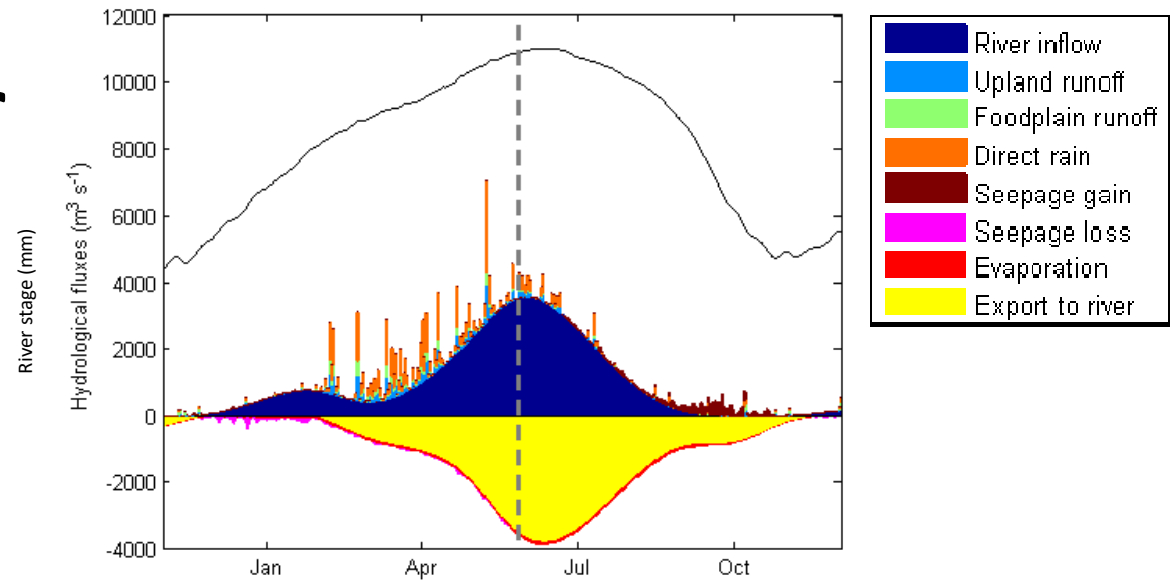
# The Curuai Floodplain - high water



Landsat 7 image (07/16/1999)

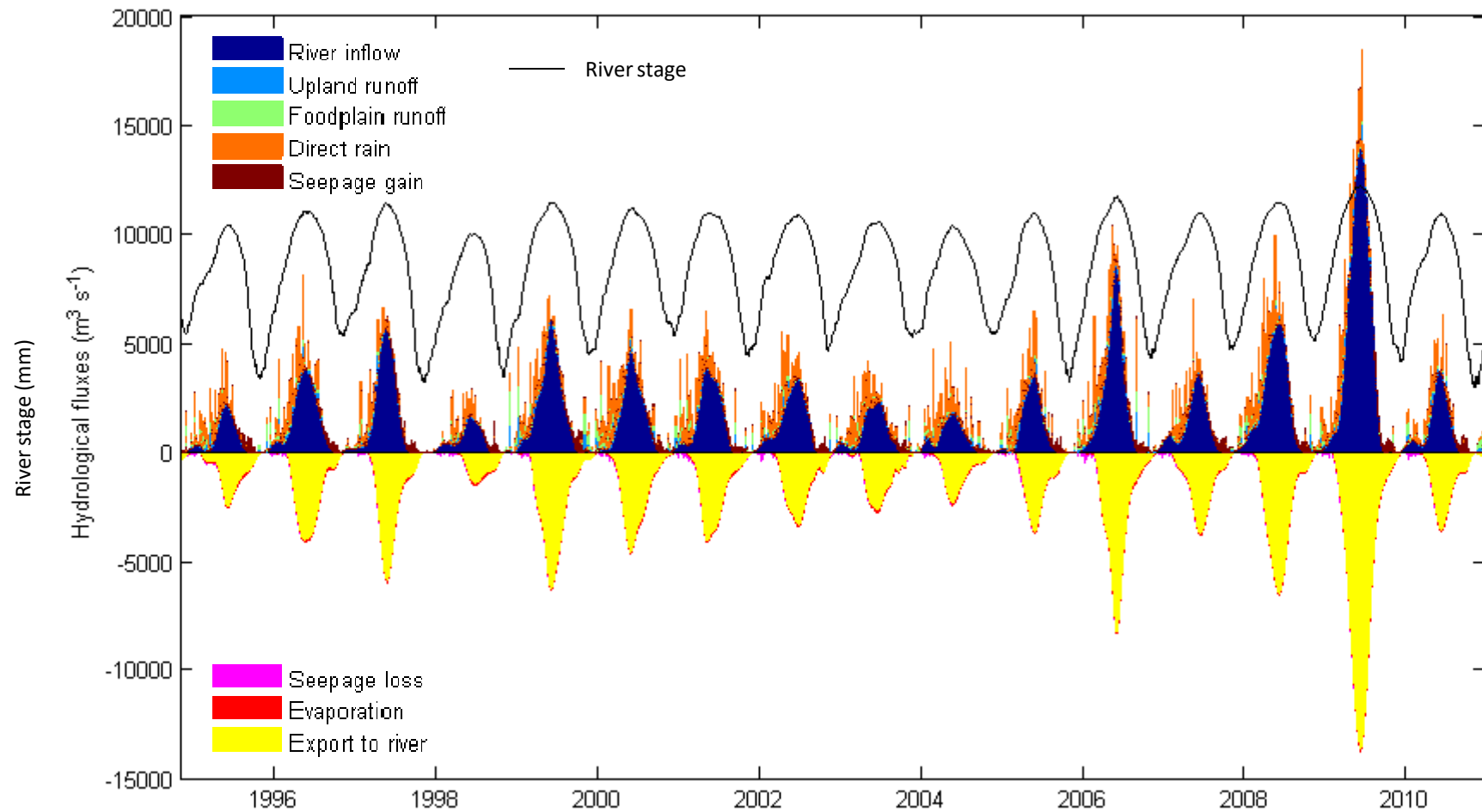
# High-water

(May 27, 2007)

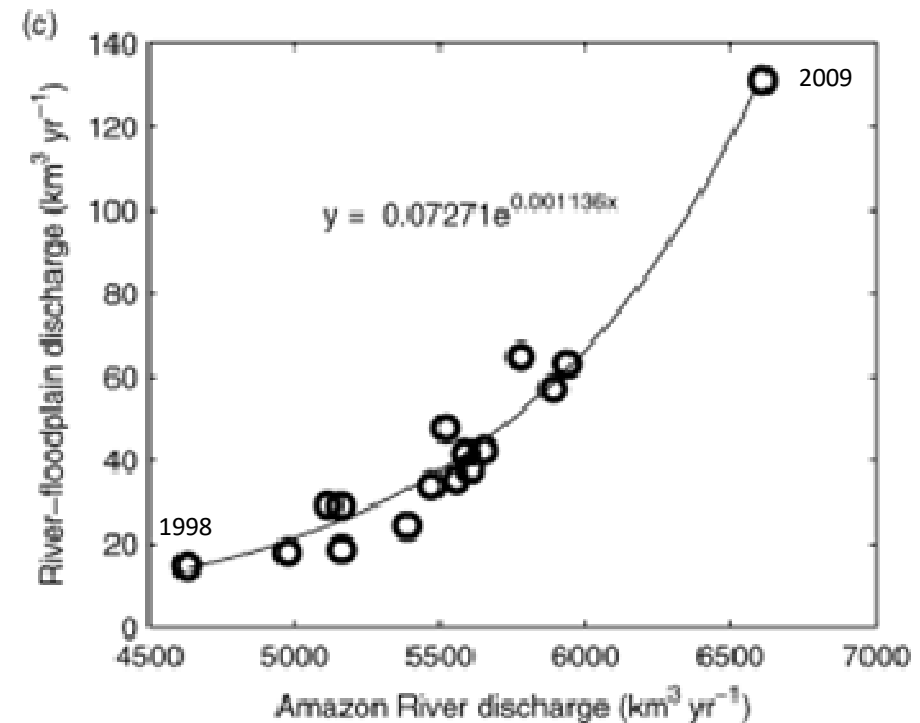
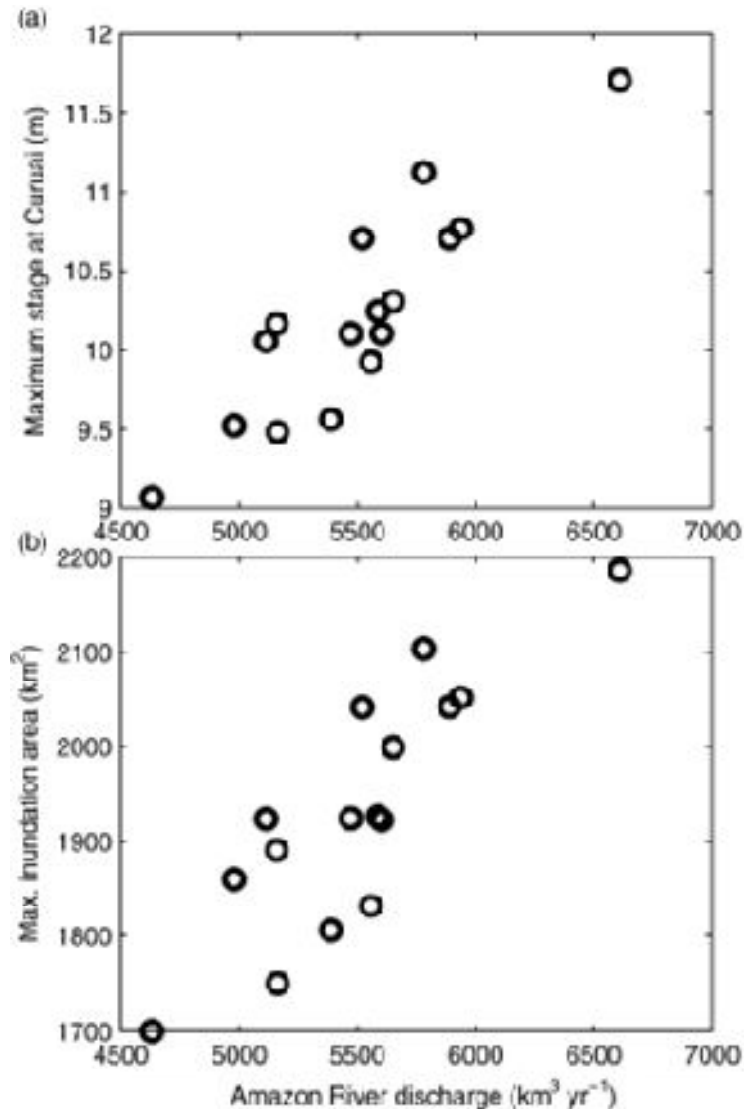




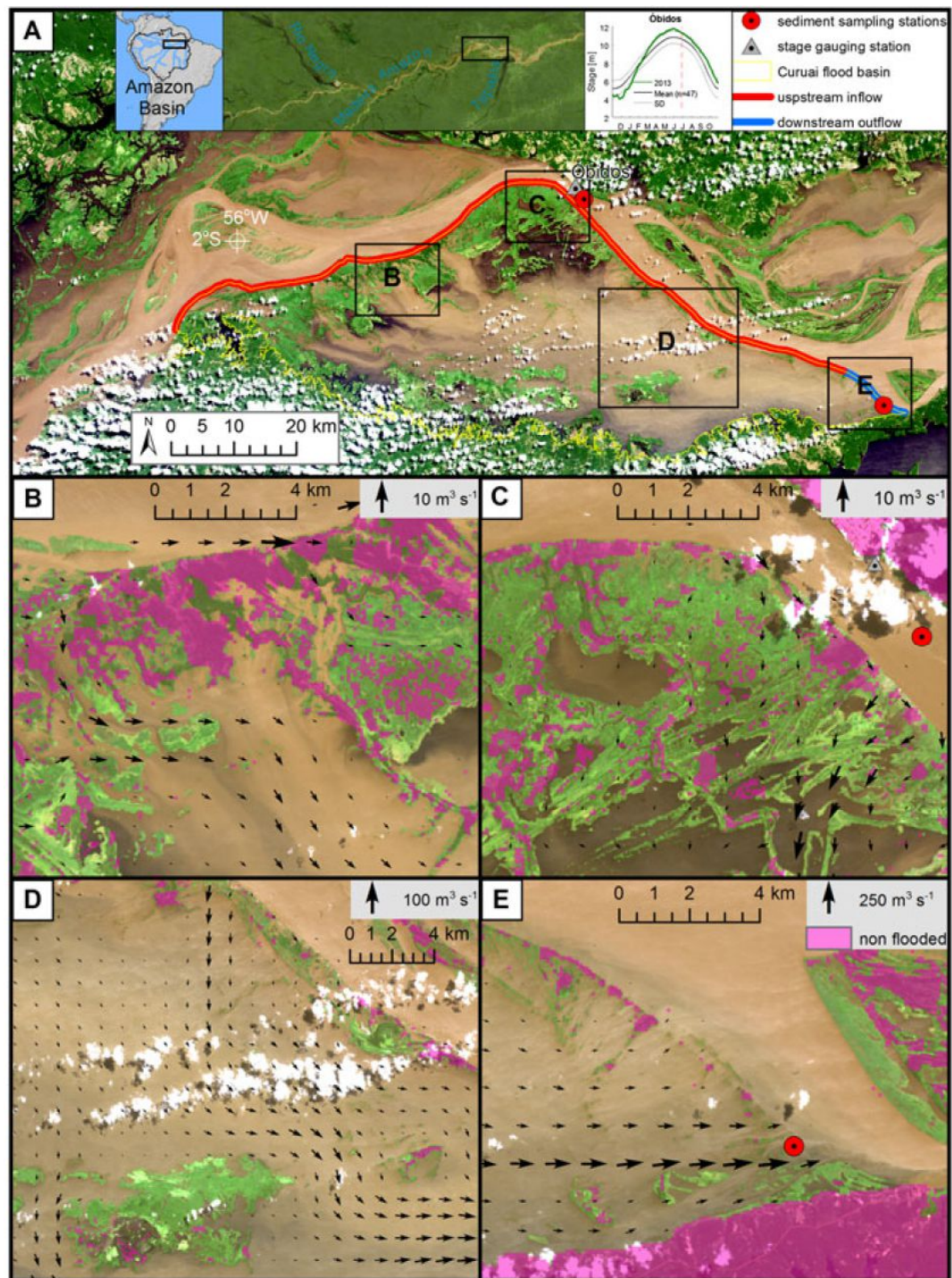
# Interannual Variations



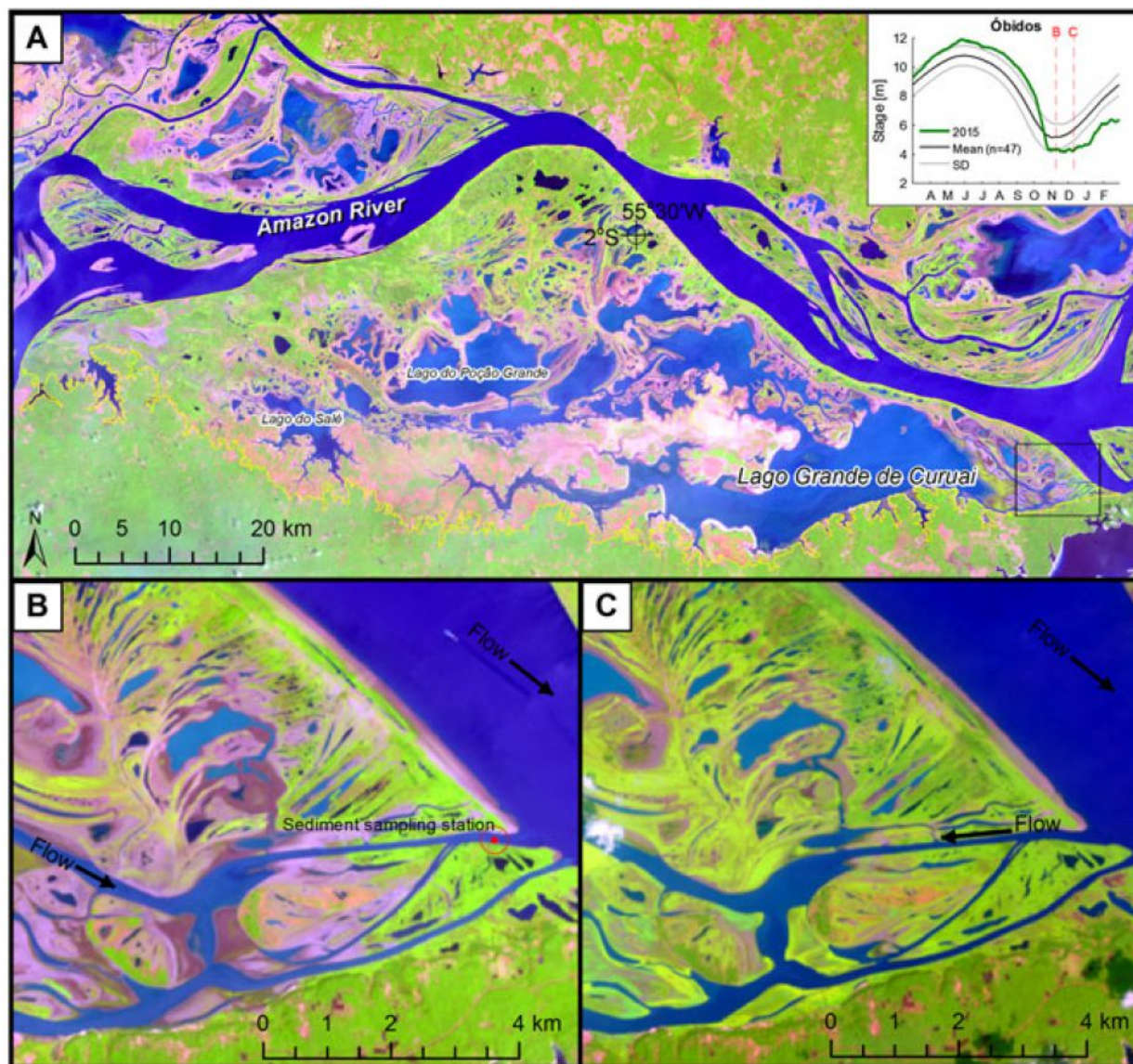
# Interannual Variations



Rudorff et al. (2014) WRR



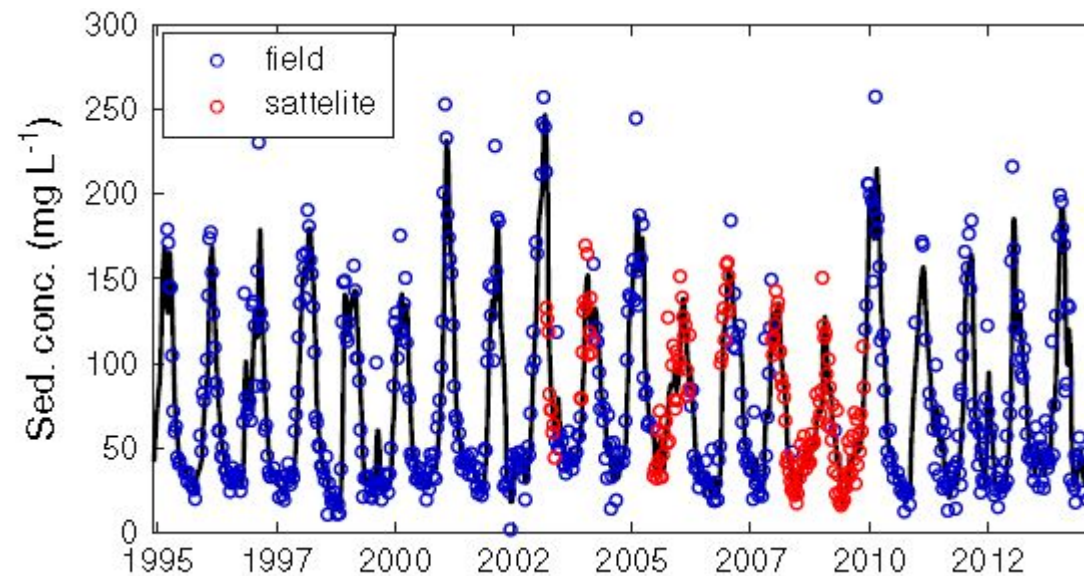




# Suspended sediment concentration

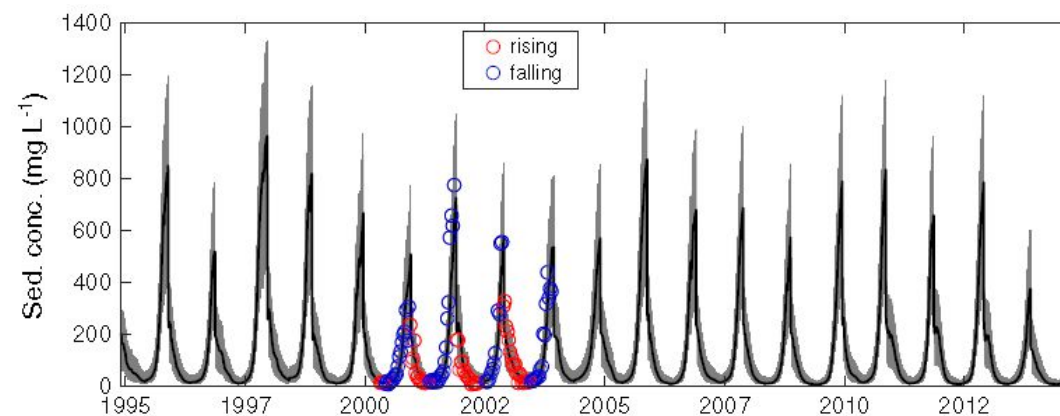
## Main channel

- sampled about every 10 days between 1994 and 2015 (ORE-HYBAM database)
- data gaps filled with MODIS derived estimates (Martinez et al., 2009)

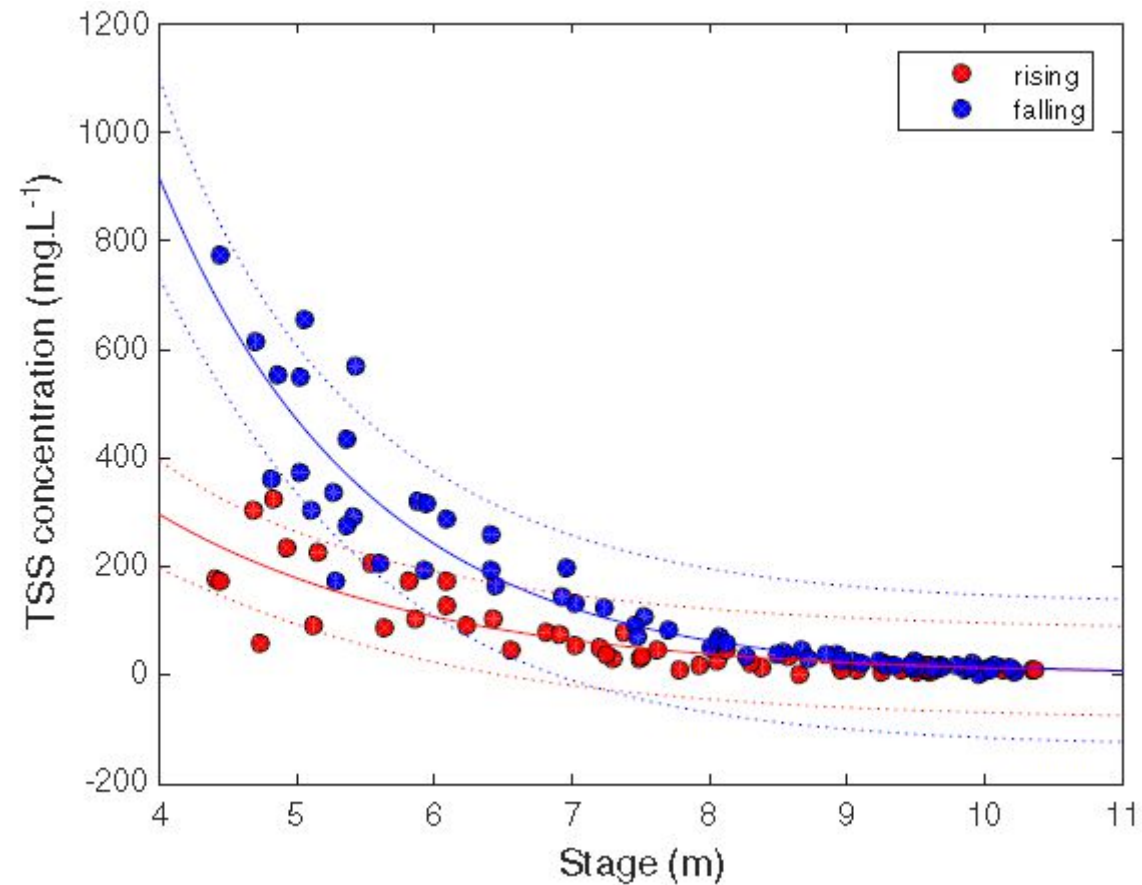


## Floodplain

- sampled about every 10 days between the years 2000 and 2003 (Moreira-Turcq et al., 2013)

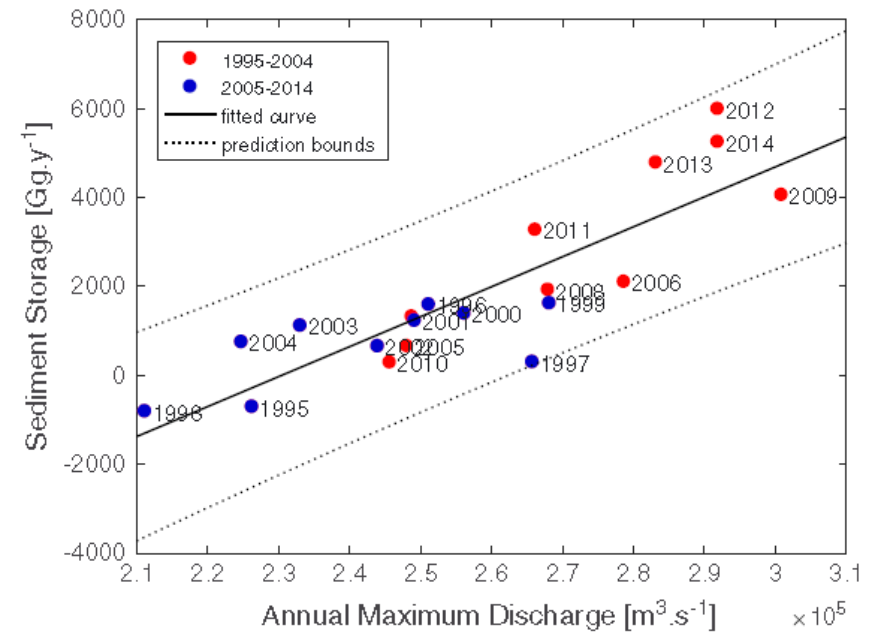
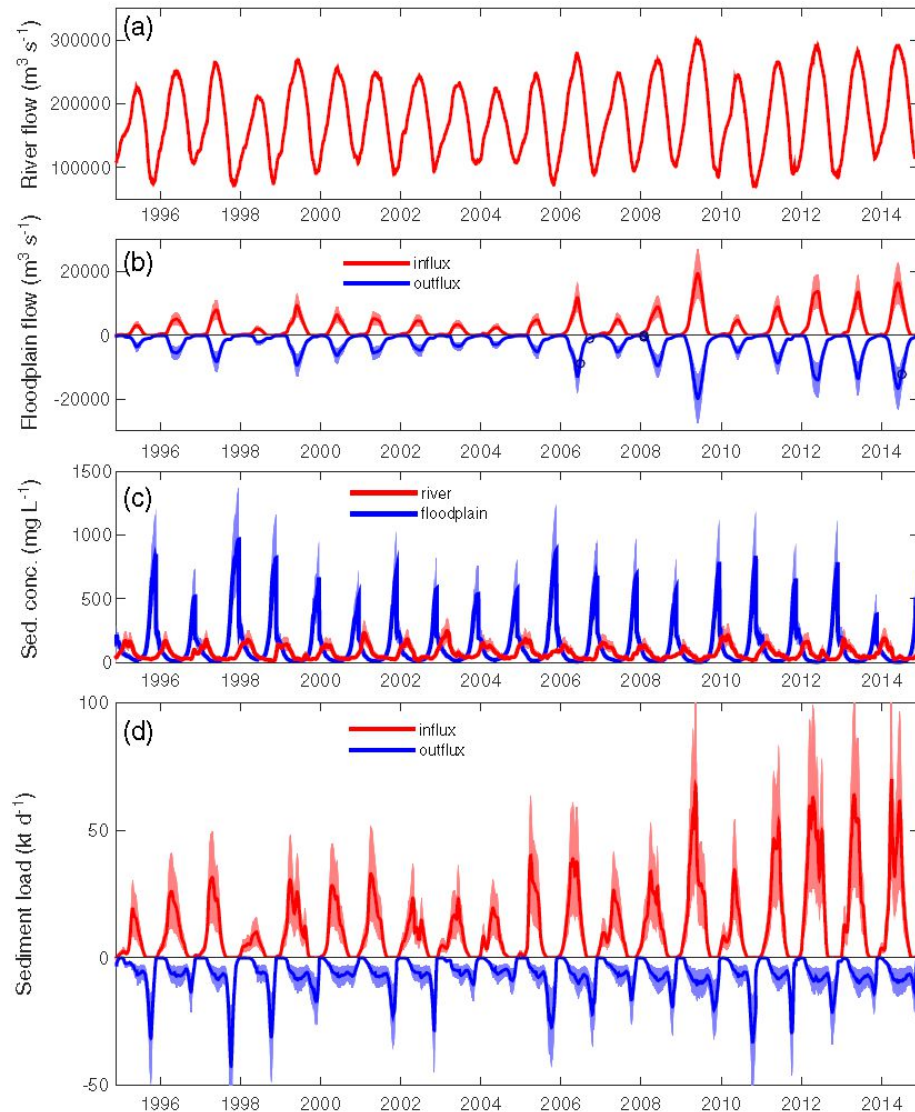


# Floodplain sediment rating curves

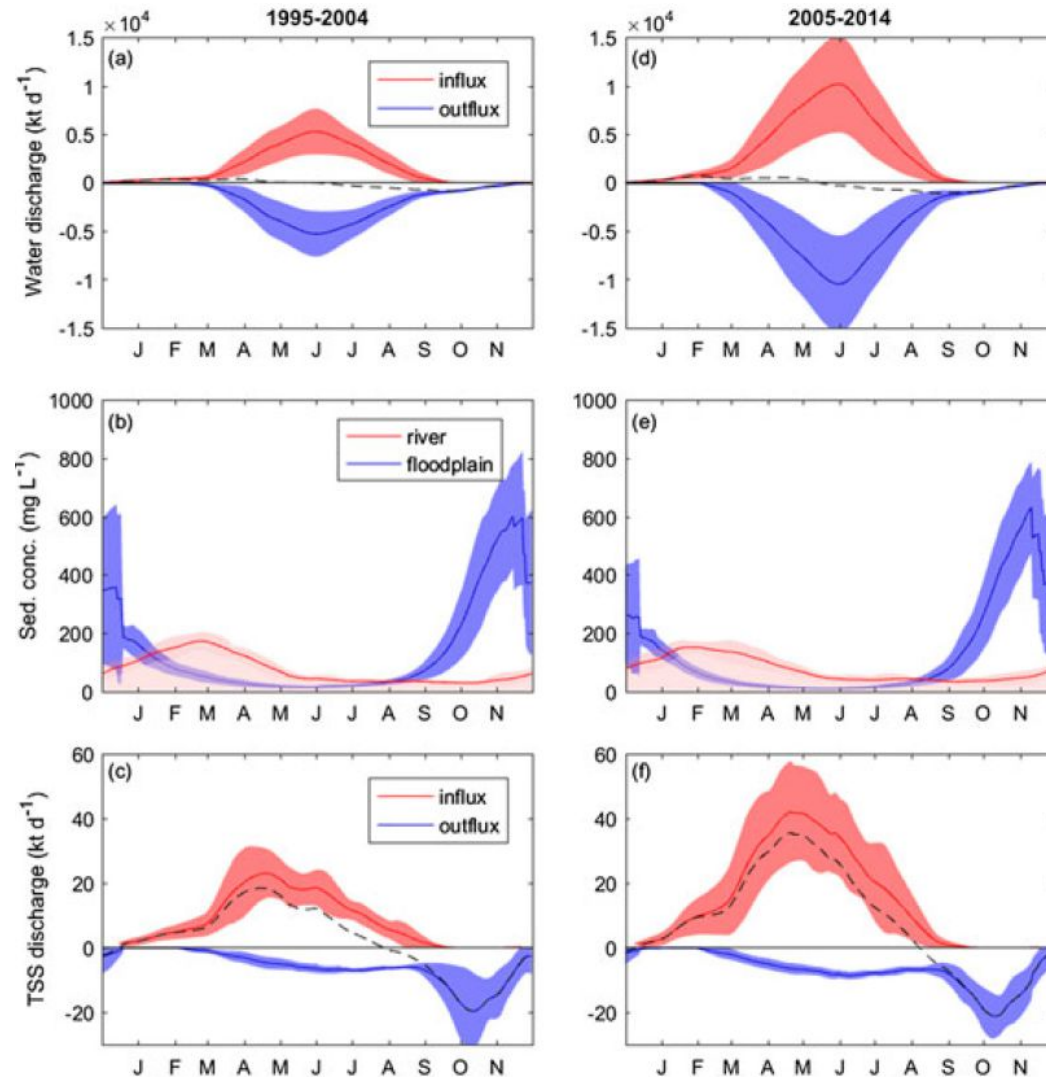




# Shift in sediment storage



# Shift in sediment storage



# Research Implications

- Relatively small increments in main stem peak discharge cause disproportional increase in the flow routed through the floodplain.
- Examinations for a period of two decades (1995-2014) indicate a substantial recent shift in sediment storage has occurred in the lower Amazon floodplain.





Rudorff, C. M., Dunne, T., and Melack, J. M. (2017) **Recent increase of river–floodplain suspended sediment exchange in a reach of the lower Amazon River.** Earth Surf. Process. Landforms, doi: [10.1002/esp.4247](https://doi.org/10.1002/esp.4247).

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# THANK YOU!

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