

Interactive comment on “The Future of Earth Observation in Hydrology” by Matthew F. McCabe et al.

J. FISHER

joshbfisher@gmail.com

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McCabe et al provide a well-written account of a multitude of options for remote sensing of hydrology. The paper, however, is framed squarely in an us-versus-them: commercial versus governmental agencies. This framing is oft used by the commercial sector at this stage, as government agencies present the most direct competition to business. So, we hear a lot about how commercial companies do more for cheaper and faster, etc.; but, this comparison can be very misleading. They are not doing the exact same things, so the comparison may be flawed. E.g., budget comparing GRACE to multiple VIS's. The combination of spectral range, accuracy, durability, quality, spatial coverage, data continuity, and transparency is limiting with current commercial capabilities. The authors do discuss this, but only after glowing about the commercial sector. At one point, McCabe et al state, “The commercial model may not seem to have immediate

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relevance to advancing scientific inquiry.” A comment on the article title “it is not well aligned with the paper content, which focuses on commercial technology (though reviewing very well and thoroughly governmental capabilities). A more accurate title would be, “The Future of Commercial Earth Observation in Hydrology;” or, possibly: “The Future of Commercial Earth Observation in Hydrology: the commercial model may not seem to have immediate relevance to advancing scientific inquiry”... ;)

Along these lines, what is desperately needed for the authors to make their case more compelling is to start with the key science and applications needs, the necessary observational requirements, the associated technological capabilities, and then map those onto commercial capabilities (and maybe potential business/market case). For instance, if we require high spatiotemporal resolution permafrost coverage of the pan-Arctic, then are drones going to do it? Can cubesats handle thermal radiometers or LiDAR? It's not that drones aren't useful—it's that they are useful for specific applications. The text should be structured more along the lines of that traceability matrix.

I do agree with the authors that the commercial sector has enormous potential to add to and advance the state of hydrologic remote sensing. But, the case needs to be made a bit more measured and analytically, staying away from the “commercial sector can do everything governmental agencies can do, just cheaper, faster, and better” marketing lines.

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