

Interactive comment on “Making better sense of the mosaic of environmental measurement networks: a system-of-systems approach and quantitative assessment” by Peter W. Thorne et al.

Anonymous Referee #2

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This is a comprehensive paper and I only have minor comments on it. Whilst the paper is specifically directed towards the validation of satellite observations, the approach outlined could be applied to a wide variety of data types (it would be worth pointing this out in the paper).

A few specific comments on the paper:

• I have made no attempt myself to independently verify the assessment in Figure 4 (which would be a massive task in itself). • There's a slight inconsistency between section 3.1 (which says that six categories are mandatory and one optional) and 4.3.6 (where both software and usage are listed as optional). I assume this was because the

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process started with the intention of usage being a mandatory criterion and this decision was changed during the evaluation – in which case that should be stated. • The final network classification (as described in 4.4) is not listed anywhere in the paper. If not done as a standalone table, it could reasonably be done as an additional column in Figure 4. • The classification of Reference, Baseline and Comprehensive networks as being mutually exclusive categories (rather than Reference being a subset of Baseline, and both a subset of Comprehensive) is a little counter-intuitive – especially when looking at Figure 6 where the only 'Comprehensive' networks are tiny. Perhaps the caption of Figure 6 could emphasise their mutually exclusive nature more? • P29 line 18: 'we shall concentrate in future work upon those classified as Reference'. Do Reference-level networks exist for all elements of interest, and are Reference-level networks sufficient for regional-scale validation? (Figure 6 indicates, for example, that for water vapour, Reference-level networks are sparse outside Europe and North America; I imagine this would apply to many variables). • In 5.2.1, it could perhaps be noted that there is no obvious mechanism for driving the adoption of a consistent nomenclature – WMO and GCOS are perhaps the most central organisations in this context, but many of the data sets under consideration will have limited or no involvement from WMO or its member countries.

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