

## ***Interactive comment on “On inclusion of water resource management in Earth System models – Part 1: Problem definition and representation of water demand” by A. Nazemi and H. S. Wheater***

**B. Davison**

bruce.davison@ec.gc.ca

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I found this paper to be very useful in gaining a better understanding the representation of anthropogenic influences in large-scale land-surface and hydrologic models. The depth of material presented is impressive. The following comments reflect my impression of how the introduction can be made more clear and comprehensive.

The background and scope could be improved to make it very clear what constitutes water demand for this paper and what constitutes water supply for the companion paper. The meanings of the terms "water demand" and "water supply" are mentioned at

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the end of the background and it took me some time with both papers to clearly understand what the authors specifically meant by "water supply" and "water demand". I would find it useful to put both papers in context if the authors add a paragraph somewhere in the background section clearly identifying these two terms.

After reading both papers, my understanding of the authors' definitions can be summarized as follows:

### Water Demand

- Irrigative
- Non-Irrigative
  - Municipal
  - Industrial
  - Agricultural

### Water Supply

- Reservoirs
- Streamflow diversions and inter-basin transfers
- groundwater
- desalination and water re-use

A paragraph of two clearly defining water supply and demand, with a brief description of each sub-point, would help the unfamiliar reader to quickly put the reviews into context.