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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Hydrology and beyond: The scientific work of August Colding revisited" *by* Dan Rosbjerg

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The manuscript is an overview over the scientific work of a giant within environmental engineering, the Danish engineer and researcher August Colding (1815-88). His work is presented in ten short sections treating a wide range of topics within physics and earth sciences. The paper is well written and awakens the reader's interest in this researcher, who was strong in both theory and practical applications and who made several groundbreaking findings. It is an overview paper and within that format it has not been possible to go into details to give the reader a full understanding of the various experiments and theories. But the greatness of Colding is clearly shown and the reader can agree with the author's hope, formulated in the last sentence of the paper, "Maybe the above overview of his extremely diversified and original research can lead to a

renewed interest and appreciation". The paper is well worth publishing in Hess after taking the comments below into consideration.

Comments:

Several figures have poor quality and are difficult or impossible to interpret (Figure 3 and Figures 6 -11). Is it possible to scan the originals or better copies of the originals? The paper would be greatly improved with better figures. Explanatory captions would also be helpful.

Line 55-57 The author makes an important comment on the term "force". This could preferably be placed a little earlier, perhaps (slightly modified) as a footnote to line 44. With the present organization the reader gets confused by the use of "force" in the preceding paragraphs.

Line 121-123 The reader gets curious about data or other evidence behind the statement that "The monitoring efforts proved excellent for assessing the amount of evaporation and its dependence on precipitation and seasonality." Please describe Colding's evaluation.

Line 150-152 What type of "water loss from a pipe with flowing water" was considered? Please explain.

Line 215 and Figure 9 Did he really find a parabolic piezometric surface for a confined aquifer draining to open water? The shape of such surface is determined by the geometry of the confined aquifer (and the boundary conditions). The parabolic surface must be a special case. For an unconfined aquifer, on the other hand, the water table may have a parabolic surface (unconfined aquifer on a horizontal bottom, without recharge). Due to the poor quality of Figure 9 it is not possible to evaluate the experiment. Please improve the copy and explain what the figure shows.

There are some proof reading errors. See lines 153, 191, 219, 226, and 315 (1976 should be 1876).

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