Call for *Software Papers* in Computers & Geosciences

March 19, 2015

This is a call for papers for a special issue of *Computers & Geosciences* with *software papers*, a new paper type. The deadline for this special issue is Jul 1, 2015. The special issue editor is Edzer Pebesma.

With the advent of *computational science* as a substantial part of many natural sciences including the geosciences, the development of scientific software to implement, apply and evaluate computational models has strongly increased. Analogue to sharing scientific findings, there is an increasing need to publish this software, and communicate this through scientific papers. Although many papers in *Computers & Geosciences* come with software implementation, and the *software review* exists as a special paper type, the journal so far had no *software paper* type where software is described as the main contribution.

A *software paper* presents a piece of software, usually developed by the authors, to a scientific audience. It describes which scientific problems the software solves, which computational models it implements, why there was a need for this software, how it relates to other solutions, under which license it is being made available, where it can be found, and demonstrates how the software works by one or more real examples. All this is done with complete references to the relevant sources. Finally, it discusses implementation details (e.g. the architecture chosen, user interface), usability, portability, and limitations. As any scientific paper it should be written concisely and factual, and should try to convince its readership about the scientific progress made by publishing this software[1].

Software papers are submitted along with the software they describe, either as files or as a reference to a web site or a github repository. Transparency of scientific conduct requires that the software is published under a useful open source licence. The submission should include everything needed to replicate the example(s) presented in the paper. The review process includes the act of verifying that the software works, and reproduction of the examples.

[1] In contrast, a user manual is part of the software and describes the complete functionality, may be written less formally, and may omit comparisons, implementation details, and discussion.