

Interactive comment on “The European flood risk directive: challenges for research” by E. Mostert and S. J. Junier

Anonymous Referee #2

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While potentially quite an interesting paper, at present, it not really well enough focused to merit publication. The paper provides quite a detailed review of the legislative evolution of the flood risk directive (FRD), discussing in detail how various different clauses were altered as the draft directive was batted back and forth between the Commission, European Parliament, and Council of Ministers. This is quite an interesting legal discussion, but it is not tied into any wider analysis of European policy making or legal powers. Instead, this initial discussion is offered as background to the main focus of the paper—identifying the challenges for research presented by the FRD.

Unfortunately the discussion that follows suffers from 2 problems that would need to be resolved before this paper were suitable for publication in HESS (or, depending on

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how the paper were reframed, for some other journal).

First, the paper needs to be much more narrowly addressed some specific and more clearly defined audience. The FRD potentially raises all sorts of interesting research questions, but not all of them are really of interest for (or answerable by) readers of HESS. For example, the origin and evolution of FRD raise some interesting questions for political scientists, both about the expansion of European competency into an area that had previously been a local or national one and, however you look at it, is pretty far removed from the original 'free-trading' origins of the EEC. There are also important questions about policy implementation and the institutional politics of multilevel environmental management. These questions are hardly unique to flooding, and there is a substantial literature in political science and environmental studies on multilevel governance and policy implementation, which this paper doesn't engage with (e.g. Jordan 2002 Environmental Policy in the European Union; Weale et al 2000 Environmental Governance in Europe). If the paper were addressed to a political science audience, it would need to engage with this literature, and further to my second point below, need to say a bit more about the specific research questions raised for this audience by the RFD. But given the fact that this paper been submitted for publication in HESS, it is probably aimed at hydrologists and earth system scientists, rather than students of politics. In this context the implicit question is probably not what research can we do on the FRD, but rather what research do we need to do for the RFD. But here the discussion doesn't really say, in much detail, what the specific challenges for hydrologists or ecologists or other species of earth system scientist might be. Instead the paper runs through the RFDs requirements for flood risk assessment, mapping, risk management planning, and public participation often in quite general terms, without specifically identifying how those statutory requirements are relevant to some particular audience. Take the example of flood risk mapping, this requirement raises very different research questions for institutional political scientists (who might want to know about how the maps will be used in spatial planning, how this function will be coordinated with other, typically institutionally separate, functions like flood defence, insurance and compensation,

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or forecasting, warning and emergency response) as it does for hydrologists trying to predict the frequency and spatial pattern of flood inundation.

Second, as that implies, the paper needs to be more specific about delineating exactly what the research challenges are (and for whom). Sticking with the example of flood risk mapping, the paper does a good job of discussing different conceptual approaches to measuring the consequences of flooding, but little about the methods of catastrophe modeling, the institutions responsible for it (largely private sector insurance firms or consultancies like RMS) and the substantial data access and intellectual property rights obstacles to mapping the spatial extent of exposure. There has been some interesting work in the UK on vulnerability to flood risk, which suggests that depending on what scale you measure it (local authority v. postcode level) you get quite a different sense about whether the poor are differentially vulnerable to flooding (Fielding and Burningham 2005 Environmental inequality and flood hazard. *Local Environment* 10: 1-17; cf. Johnson et al. 2007 Natural and imposed injustices: the challenges in implementing 'fair' flood risk management policy in England. *Geographical Journal* 173: 374-390). On the probability side, there are some quite different approaches to modeling flood inundation risk (1D v. 2d modeling set ups; different digital terrain modelling methods and parameterization schemes for accounting for surface land cover and water routing), but the paper says almost nothing about what the major scientific issues would be, how they might be addressed, or what institutional-political implications might follow from addressing them in different ways in different places, countries, and contexts.

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