

How to manage models outputs aggregation for indicator quantification within SEAMLESS Integrated Framework

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SEAMLESS-Integrated Framework (S-IF) aims at assessing, ex-ante, impacts of policy options and agro-technical innovations on the sustainability of agricultural systems and on sustainable development at large. To reach this objective the modelling chain of S-IF, which simulates the behaviour of the key hierarchical agricultural systems, calculates a set of environmental, economical and social indicators at different scales (from field to EU). Despite the large range of scales at which S-IF can provide model outputs it is not always possible to calculate the indicators required by policy experts without a scale change procedure. Accordingly several aggregation procedures for upscaling model outputs have been developed. This paper presents the aggregation methods and concepts that underpin the scaling capacities of S-IF as well as some examples. The necessity to manage temporal and spatial aggregation of model outputs led SEAMLESS researchers to define generic indicator attributes and aggregation procedures which are described in an ontology of indicators. In the ontology each indicator is defined in a generic way. This involves first a combination of an assessment criterion (tagged to a model output) its units and its spatial and tem-

poral resolutions (model output scales) and extents (policy expert's target scales). The second element of the definition contains complementary information necessary for transforming model outputs and for aggregating from the indicator resolution to the indicator extent for example algorithms and parameters for transforming or aggregating model outputs). To manage indicators within S-IF a flexible Indicator Manager which provides and links indicator selection, classification (i.e. indicator framework), edition and calculation functionalities of the framework is in development.

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