In these study reaches, a constantly growing database on flow and sediment transport measurements (Fig 1b, c), as well as measurements used to create up to date Digital Terrain Models, is continuously fed by accompanying monitoring programmes.

3. Results

3.1 Hydrodynamic models

Differences of modeled parameters between calibrated and validated small scaled models (W, BDA) and the large scaled model (W-BDA) were negligible, when differences in the applied bathymetries are considered. Furthermore, the effect of the confluence with river Morava and the sharp bend upstream the confluence did not influence model results when compared between the smaller BR-s and the large scaled BR model (Fig. 2), except within a short reach (200m) at the model inlet of the BR-s model.

3.2 Sediment transport models

Modeled bed load transport of the small scaled model BDA showed excellent agreement with the bed load transport measurements (Liedermann et al., 2018) along the bridge BDA (Fig. 2a), including an extreme flood event, when compared to discharge. Furthermore, the small scaled W model was in accordance with the bed load measurements at km 1892.3 (Gläs et al., 2018). Bed load transport for mean flow conditions in the large scaled models (W-BDA, BR) were in accordance with the associated measurements. On the other hand bed load transport in the BR model for a HQ100 flood was lower than in the small scaled model BDA-l, which may be either due to missing information on finer material depositions close to the right shore of the measurement profile (km 1879.5) or due to a generally lower transport rate in this section.

4. Conclusions

Six hydrodynamic and sediment transport models on various scales were performed and analyzed in terms of bed load transport and bed evolution. Bed load transport performs well in comparison to measurements. Also, bed evolution for small scaled models as well as short and large scaled models was computed successfully. In terms of large spatial scales, combination with large temporal scales, future efforts has to be put on suspended sediment transport for reaching a morphological equilibrium.

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