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GEMS/Water
Impact assessment of flux estimation from international river basin using GEMS/Water dataset

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In this study, we aim to estimate nutrient loading from Land Zone throughout international river basin using the GEMS/Water (Global Environment Monitoring System / Water) Dataset for the purpose of estimating the gross nutrient loading to the marine environment to provide dataset necessary for assessment of the current status of the coastal zone, especially for the water quality of Bays and Estuary zone. In this procedure we have used the set of discharge data obtained from GRDC (Global Runoff Data Centre) as to be used for the loading estimate based on the "observed" data. The locations of GEMS/Water and GRDC station have been compared to identify appropriate station set to calculate loading. The characteristics land use of each target river basin has also been analyzed using the Global Land Cover Characterization dataset prepared by USGS.

Monthly average fluxes for 14 international river streams are estimated using above dataset. As a result, fluxes of NH4-N and BOD of those rivers that flow into the Arctic Ocean are higher than other 13 rivers, which might be caused either by livestock cultivation in the basin or by deoxidization of Nitrogen associated with permafrost melting.

In addition, we have estimated Suspended Solid (SS) and NH4-N Loading from Rhine River using both GRDC discharge datasets. Rhine River has significantly decreased from 1980's to 1990's by loading estimation using GRDC and GEMS/Water Dataset. The Rhine basin is mostly covered with Dry land Cropland and Pasture, which is generally considered as high nitrogen compounds loading throughout the livestock farming. The decrease in concentration may have introduced by strict nutrient control in the basin.

                    :   , GEMS/Water,   ,
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