

## **Digital Soil Mapping for the Functional Analysis of** Site Characteristics in Complex Terrain

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Relationships to

vegetation

(forest/

agriculture)

Pedodiversity at

different scales

**Conceptual framework** 

Site

characteristics

Soil data (partly

predicted by

spectrometric soil

functions)

Digital soil

mapping

Environmental

parameters

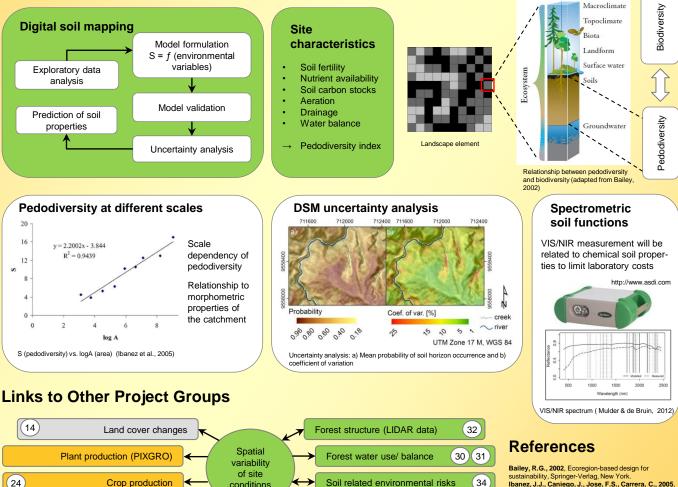
(Predictors)

## Introduction

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Information on the spatial variability of soils is essential for sustainable land management. Site characteristics such as nutrient availability or drainage determine plant growth and, hence, forest growth and management as well as agricultural production. Digital soil maps (DSM) of the Soyang Lake Watershed will be developed for important chemical soil parameters by supervised learning techniques (e.g. CART, random forest, boosting) including an uncertainty analysis. Pedodiversity at different scales as well as its relation to biodiversity and forest structure will be investigated to understand landscape functions, the impact of land use on soil fertility and ecosystem services.

## Methodology



sustainability, Springer-Verlag, New York. Ibanez, J.J., Caniego, J., Jose, F.S., Carrera, C., 2005, Pedodiversity-area relationships for islands, Ecological modelling, 182, 257-269. Mulder, V.L., de Bruin, S., 2012, Retrieval of composite

mineralogy by VNIR spectroscopy. In: Minaso, B., Malone, B.P., McBratney, A.B., Digital Soil Assessm and Beyond, CRC Press, Boca Raton, pp. 373-380.



Crop production

Crop water use efficiency

Forest landscape of Soyang

25

River valley landscape

conditions

Soraksan national park

Economic evaluation

Soil related environmental risks

Haean agricultural landscape

34

54

Numbers refer to posters

Typical soil profiles of Haear