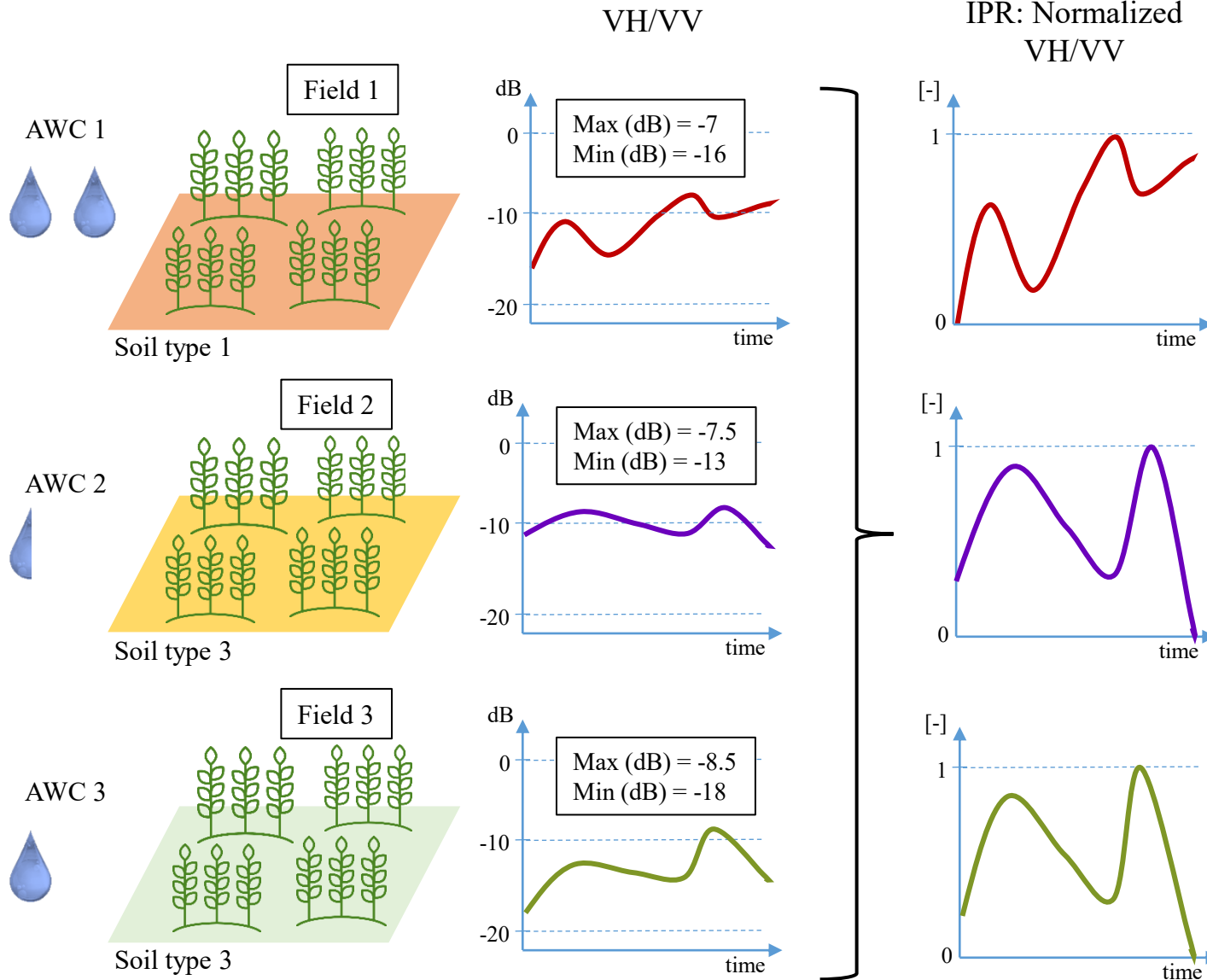


Polarization Ratio Index: Normalization of the VH/VV combined backscattering



$$IPR_i = \frac{\left(\frac{VH}{VV}\right)_i - \left(\frac{VH}{VV}\right)_{min,i}}{\left(\frac{VH}{VV}\right)_{max,i} - \left(\frac{VH}{VV}\right)_{min,i}}$$

The VH/VV combination of radar bands is particularly suitable for vegetation monitoring. The sensitivity of VH/VV (dB) is related to the vegetation cover, surface geometry and soil moisture. Each agricultural field produces a VH/VV signal which is dependent on the specific variables of the ground surface, in addition to the crop-induced response.

In order to compare the VH/VV signals from several fields cultivated with same products, the index was normalized by to the difference between the maximum and minimum dB values from each field. According to this procedure, crop-specific fields can be compared in terms of relative VH/VV (named IPR, *Polarimetric Ratio Index*), and the bare-soil backscattering can be filtered more easily. This procedure aims to limit the impact of ground surface heterogeneity and soil moisture on the backscattering signal, focusing the temporal series on the vegetation-induced effects.

Polarization Ratio Index: Normalization of the VH/VV combined backscattering

