Radar backscatter is impacted by forest type and structural forms (type and orientation), environmental conditions (e.g., moisture, and phenology), and radar imaging properties. Taking these into account can assist with the use of SAR for forest monitoring.

**RADAR VEGETATION INDEX (RVI):**

\[
RVI = \frac{\delta \gamma_0^{\text{HV}}}{(\gamma_0^{\text{HH}} + \gamma_0^{\text{VV}} + 2\gamma_0^{\text{HV}})}
\]

\(\gamma_0\) (gamma-nought) represents the radiometrically and geometrically corrected SAR backscattering coefficient for each polarization combination in linear units \((m^2/m^2)\).

RVI is near zero for a smooth bare surface and increases with vegetation growth. It has an enhanced sensitivity to vegetation cover and biomass.

**RADAR FOREST DEGRADATION INDEX (RFDI):**

\[
RFDI = \frac{\gamma_0^{\text{HH}} - \gamma_0^{\text{HV}}}{\gamma_0^{\text{HH}} + \gamma_0^{\text{HV}}}
\]

Here, the terms are all radiometrically corrected imagery. The value of RFDI varies between 0 and 1. In general, RFDI can be used to detect both loss of forest cover and its recovery after a disturbance.