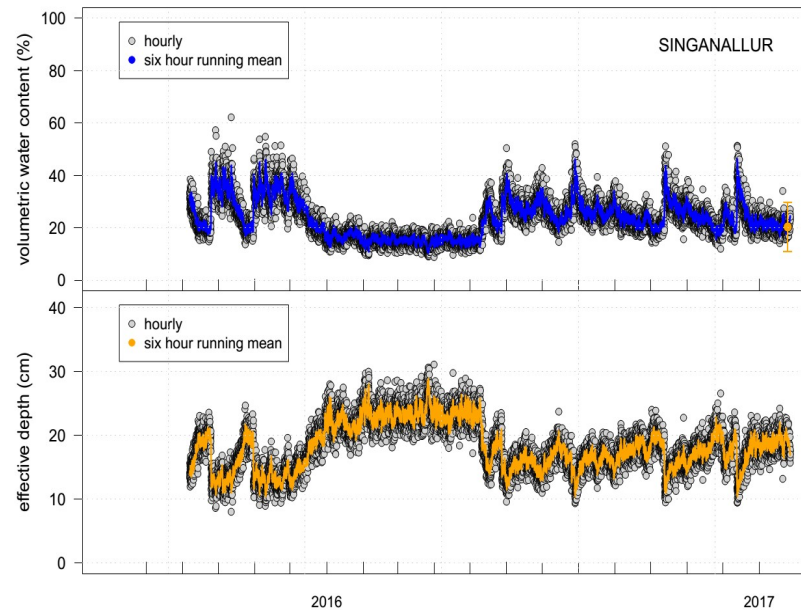


COSMOS: Cosmic-ray soil water content monitoring



COSMOS sites of Madahalli & Singanallur watersheds; hourly volumetric soil moisture content at Singanallur site

COSMOS sensors deliver high temporal frequency observations of near-surface (c. 0.1 to 0.3 m in depth) volumetric soil moisture content (VWC) at the intermediate spatial scale (c. 200 m in radius) in near real-time. VWC is inferred using cosmic-ray sensors (CRS) by counting fast neutrons which are naturally generated by incoming cosmic-rays, and are slowed or captured by hydrogen atoms contained primarily within water within the upper soil profile. Applications that will exploit COSMOS observations include: hydro-meteorological, land surface and ecological modelling, water resources research (e.g. ground water modelling, irrigation scheduling), as well as ground-truthing and improvement of remotely sensed soil

moisture data products. COSMOS sensors are established working in partnership with The Centre for Ecology and Hydrology (CEH), UK.