

## Scientist B - Agrometeorology

Name of the post	Subject	Syllabus
Scientist B - Agrometeorology	<b>Agricultural Meteorology</b>	<p><b>General Meteorology:</b> Atmospheric layers, composition, and structure. Solar radiation laws (Planck's, Stefan-Boltzmann), energy balance, albedo, direct/diffuse radiation. Heat transfer (conduction, convection, radiation), latent/sensible heat, temperature variations. Atmospheric motion (forces, wind, pressure systems, cyclones). Atmospheric moisture (humidity, dew point, clouds, precipitation). Weather phenomena (fog, frost, thunderstorms, monsoons, droughts, floods).</p> <p><b>Agricultural Climatology:</b> Weather elements and climate controls. Crop-weather relationships (temperature, photoperiodism, phenology). Heat units (degree days), thermal time, crop growing periods. Crop water requirements, evapotranspiration (ET).</p> <p><b>Micrometeorology:</b> Atmosphere-surface interactions, boundary layer, heat/moisture/momentum transfer. Modification of microclimate for crops (e.g., windbreaks, mulches).</p> <p><b>Applied Agmet &amp; Forecasting:</b> Weather forecasting types and applications in agriculture. Drought and extreme weather impact/management (indices, crop planning). Air pollution and vegetation, forest fire meteorology. Climate change, global warming, and impacts on agriculture</p>
	<b>Meteorology</b>	<p><b>Atmospheric Structure:</b> Composition, vertical divisions (troposphere, stratosphere), extent.</p> <p><b>Temperature &amp; Heat Transfer:</b> Solar/terrestrial radiation, conduction, convection, inversions, lapse rates, International Standard Atmosphere (ISA).</p> <p><b>Pressure &amp; Wind:</b> Barometric pressure, isobars, pressure gradient force, Coriolis effect, gradient wind, wind shear, altimetry (QNH, QFE).</p> <p><b>Humidity &amp;</b></p>

	<p><b>Clouds:</b> Water vapor, relative humidity, dew point, cloud formation, types, classification. <b>Precipitation:</b> Types (rain, snow, hail), development, relationship to clouds. <b>Atmospheric Stability:</b> Stability/instability, adiabatic processes (DALR, SALR). Advanced &amp; Applied Topics <b>Synoptic Meteorology:</b> Air masses, fronts, pressure systems (highs, lows, troughs, ridges), weather forecasting. <b>Severe Weather:</b> Thunderstorms, tornadoes, hurricanes, microbursts. <b>Aviation Meteorology:</b> Flight hazards (icing, turbulence, wind shear, visibility), altimetry, weather briefing, operational impacts. <b>Climatology:</b> Climatic zones, general circulation, climate change. <b>Instrumentation &amp; Observation:</b> Radiosondes, anemometers, barographs, satellite/radar tech. <b>Numerical Weather Prediction (NWP):</b> Computer modeling.</p>
--	---