Abstract

People of India are very susceptible to many infectious diseases like malaria, TB, HIV etc. There are many epidemic models that are used to predict new cases of disease. Some of the popular epidemic models are SI (Susceptible-Infectious), SIR (Susceptible-Infectious-Recovered), SIRS, SIS etc.

In this research quarterly data of TB disease in Uttarakhand (India) for 7 years is collected and on the basis of this data new infected population in the next quarter is predicted using SIR epidemic model and data assimilation technique (Ensemble Kalman Filter). Analysis and implementation is done in MATLAB. Results show good agreement to measured values.

References


8. Ashok Krishnamurthy, “Bayesian Tracking of Emerging Epidemics Using Ensemble Optimal Statistical Interpolation (EnOSI)”, Section on Statistics in Epidemiology-JSM 2010


**Index Terms**

Computer Science

Information Sciences

**Keywords**

Epidemics, Infectious Disease, Disease Dynamics, spatial-temporal SIR model & equations, Data Assimilation, Ensemble Kalman Filter, Matlab, Kalman gain Matrix