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


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