Fish Forecast Training Course

Welcome to the training programme on "Fish-catch Time-Series Forecasting with R" organized by International Training Centre for Operational Oceanography (ITCOocean) ESSO-Indian National Centre for Ocean Information Services(INCOIS), Hyderabad, India.

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This short course will be divided into a morning session on creating forecasting models for catch data and an afternoon session on report-writing, websites and code documentation with R. The course will consist of short lectures and many practical labs where you will work with R to model data and prepare forecasts (morning) and write reports and websites with R and R Markdown (afternoon)

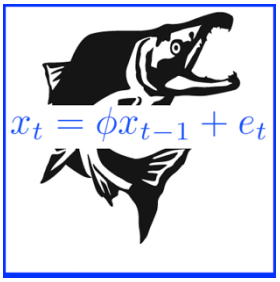
Course Website and Files

Overview: https://rverse-tutorials.github.io/Fish-Forecast-Training-Course

Catch Forecasting: https://fish-forecast.github.io/Catch-Forecasting-INCOIS/

Workflow: https://rverse-tutorials.github.io/RWorkflow-Workshop/

Forecasting fisheries catch time series with R (Forenoon)



Topics

- Time-varying regression
- Box-Jenkins (ARMA) Models
- Exponential smoothing
- Modelling time series with seasonality
- Forecast diagnostics and accuracy metrics

Report-writing and code documentation with R (Afternoon)

Topics

- Basic workflow using RStudio, Git and GitHub
- Intro to R Markdown
- Creating simple websites from RStudio
- Build an R package with RStudio
- Creating a book with R Markdown: Intro to Bookdown.
- Creating and publishing RShiny applications

Catch Forecasting Lectures and Labs

Introduction

Time-Varying Regression

Lectures	Labs
1 Introduction to time-varying regression	1 Fit TV regression models to catch data
2 Forecasts with a time-varying regression model	2 Create time-varying regression forecasts

ARMA Models

Lectures	Labs
1 Introduction to ARMA Models	1 Intro to ARMA models and diagnostics
2 Stationarity	2 Test the Greek catch data for stationarity
3 Selecting model structure	3 Fit ARMA models to the Greek catch data
4 Fitting ARMA Models	4 Create and test forecasts
5 Create and test forecasts	

Exponential Smoothing Models

Lectures	Labs
1 Intro to exponential smoothing models	1 Fit exponential smoothing models to data
2 Selecting model structure	2 Create forecasts
3 Forecasting with exp. smoothing models	3 Testing models and diagnostics

Seasonality

Lectures	Labs
1 Intro to seasonality and approaches	1 Create seasonal time-series objects in R
2 Seasonal time-vaying regression models	2 Seasonal exponential smoothing models
3 Seasonal exponential smoothing models	