

Potential Fishing Zone Advisory

An advanced potential fishing zones advisory has been developed by linking the essential ocean information available from various satellites, such as ocean colour, altimeter, scatterometer and radiometer with marine fishery potential zones. The proposed methodology for monitoring and forecasting of PFZ has been demonstrated for Indian Ocean (IO). The methodology is described in detail by Jishad et. al. (2019).

The major steps to track fishing ground parameters and develop a feature based PFZ monitoring and prediction system has two parts viz., detection and prediction for the next few days. The detection/monitoring of PFZ using the information from fishing ground parameters such as Sea surface Temperature (MODIS) and chlorophyll (OCM & MODIS) and the possibility, propagation and persistence of the identified PFZ locations are determined using Sea level, Current and Wind. A brief description of the new PFZ algorithm is given below.

The first part of the modified methodology involves the following steps:

- I. Identification of thermal fronts using Cayulla and Cornillon., 1992 Algorithm and Chlorophyll fronts using Canny Algorithm (Canny.,1986).
- II. Detection of meso scale eddies using methodology explained by Chelton et al., (2011) and Mason et al., (2014). For this the threshold of size and amplitude of the eddies was fixed as 400 km and 5 cm, respectively.
- III. Assigning the possibility of fish catch based on the presence thermal/chlorophyll fronts, eddy and value of Chlorophyll. The criteria for possibility of fish catch (rank) is shown in table 1.

Table1- The criteria for possibility of fish catch (rank)

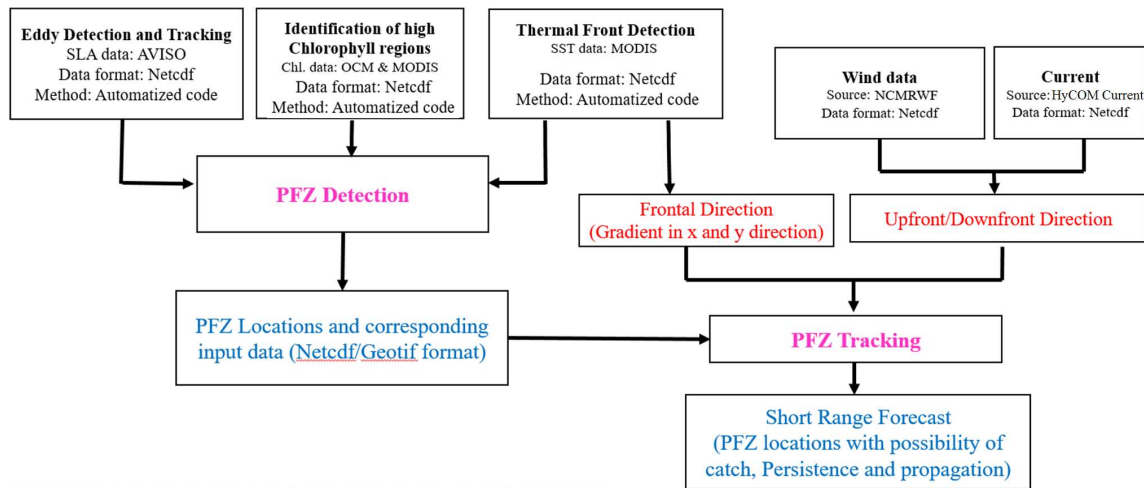
Sl.no.		Rank
1	Thermal fronts / Chlorophyll fronts	Low (1)
2	Thermal fronts+ Eddy/Chlorophyll $> 0.3\text{mg/m}^3$	Medium (2)
3	Thermal fronts+ Eddy + Chlorophyll $> 0.3\text{mg/m}^3$	High (3)

- IV. Persistence of PFZ is assigned using relative wind fields, Ekman transport and frontal direction. High persistence (with value 2) is assigned when the Ekman transport is

within 40° of the frontal direction Otherwise (if the angle between Ekman transport and frontal direction is greater than 40°) the persistence is 1.

- V. The propagation of the identified PFZ locations are listed in degrees based on the current direction.

The flowchart shown in figure.1 explains the methodology in detail.



Tracking fishing and ground parameters in cloudy region using ocean color and satellite derived surface flow estimates: A study in the Bay of Bengal (Published in Jour. Of Op. Ocean., 2019)

Figure 1. Schematic diagram of the New PFZ procedure

References

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