EFFECT OF CLIMATE FORCING PARAMETERS ON COASTAL REGIONS DUE TO MARINE AEROSOLS

NANDHAKUMAR S K
M.Tech-coastal management
IIT Madras-Project Officer

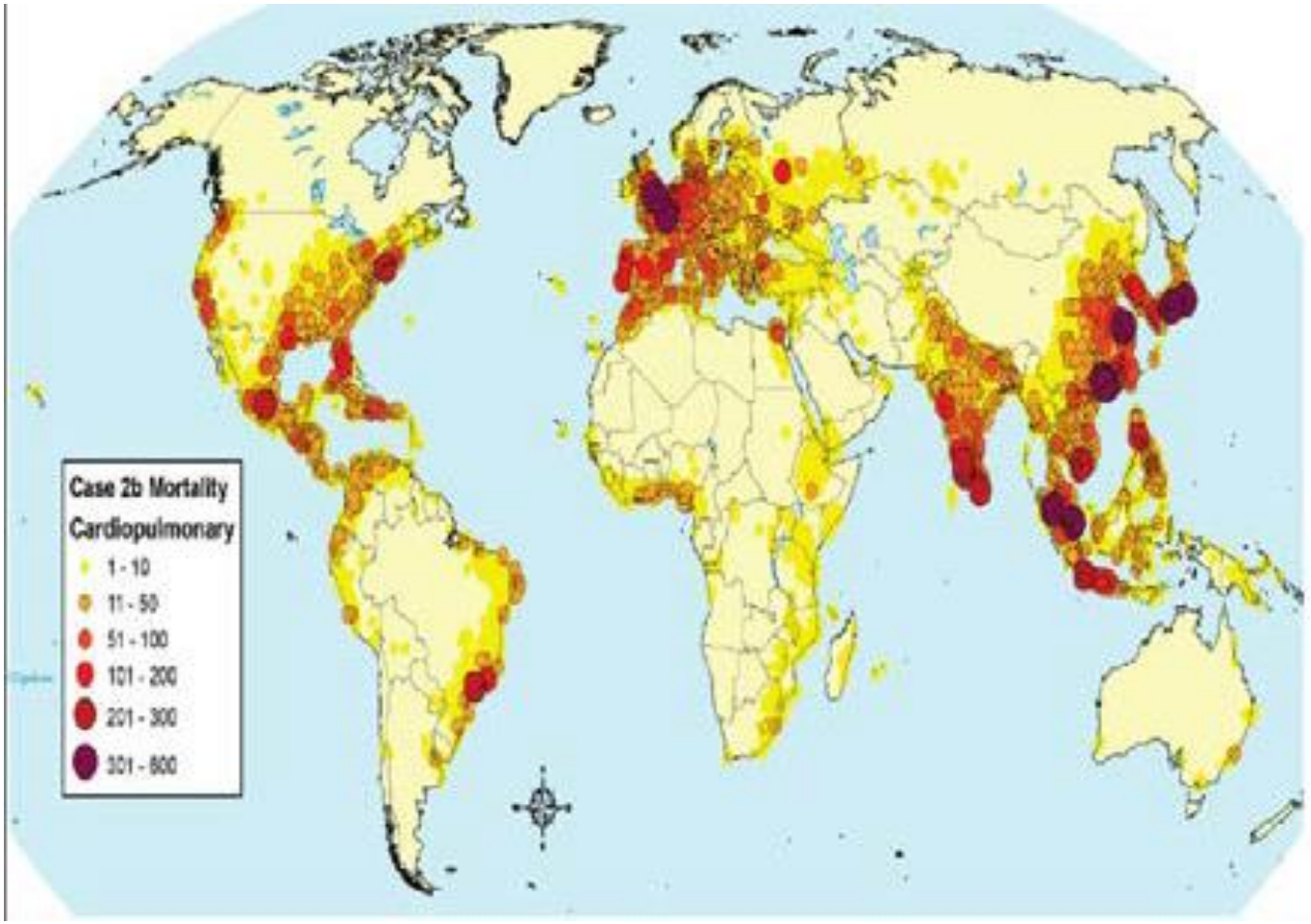
Introduction

- Annually, ocean-going vessels are estimated to emit large amount of PM10 (particulate matter with aerodynamic diameters of 10 μm or less)

- And the PM2.5 emissions from shipping are responsible for approximately 60,000 cardiopulmonary and lung cancer deaths annually worldwide, with impacts concentrated in coastal regions on major trade routes

Need on analysis of the ambient air quality

- ❑Health
- ❑Climate change



Cardiopulmonary mortality attributable to ship $PM^{2.5}$ emissions worldwide (James et al., 2007)

Objective

- Ambient air quality changes-ship and port emission
- Climate Changes/radiative forcing-ship and port emission

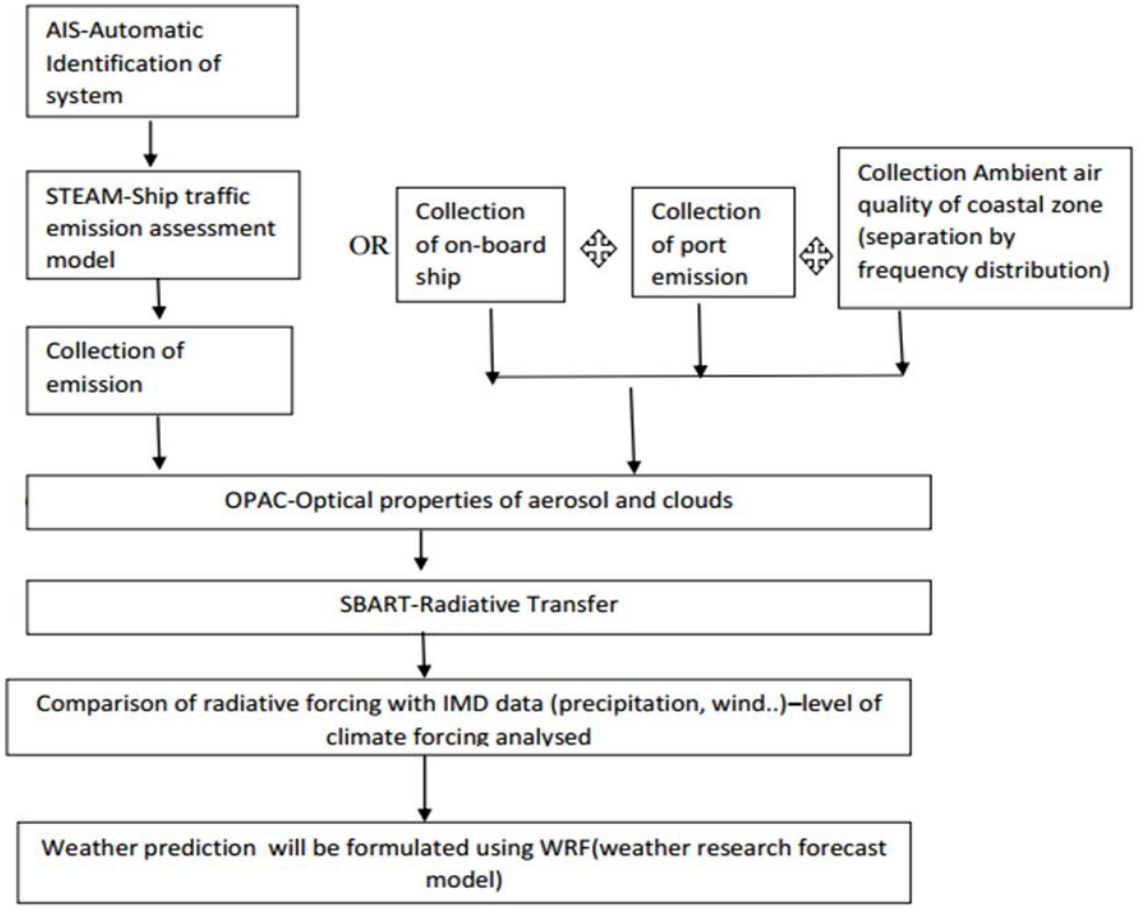
Quantification of air quality on maritime transport

air quality analyzer- in ship

Ship:sagar manjusha

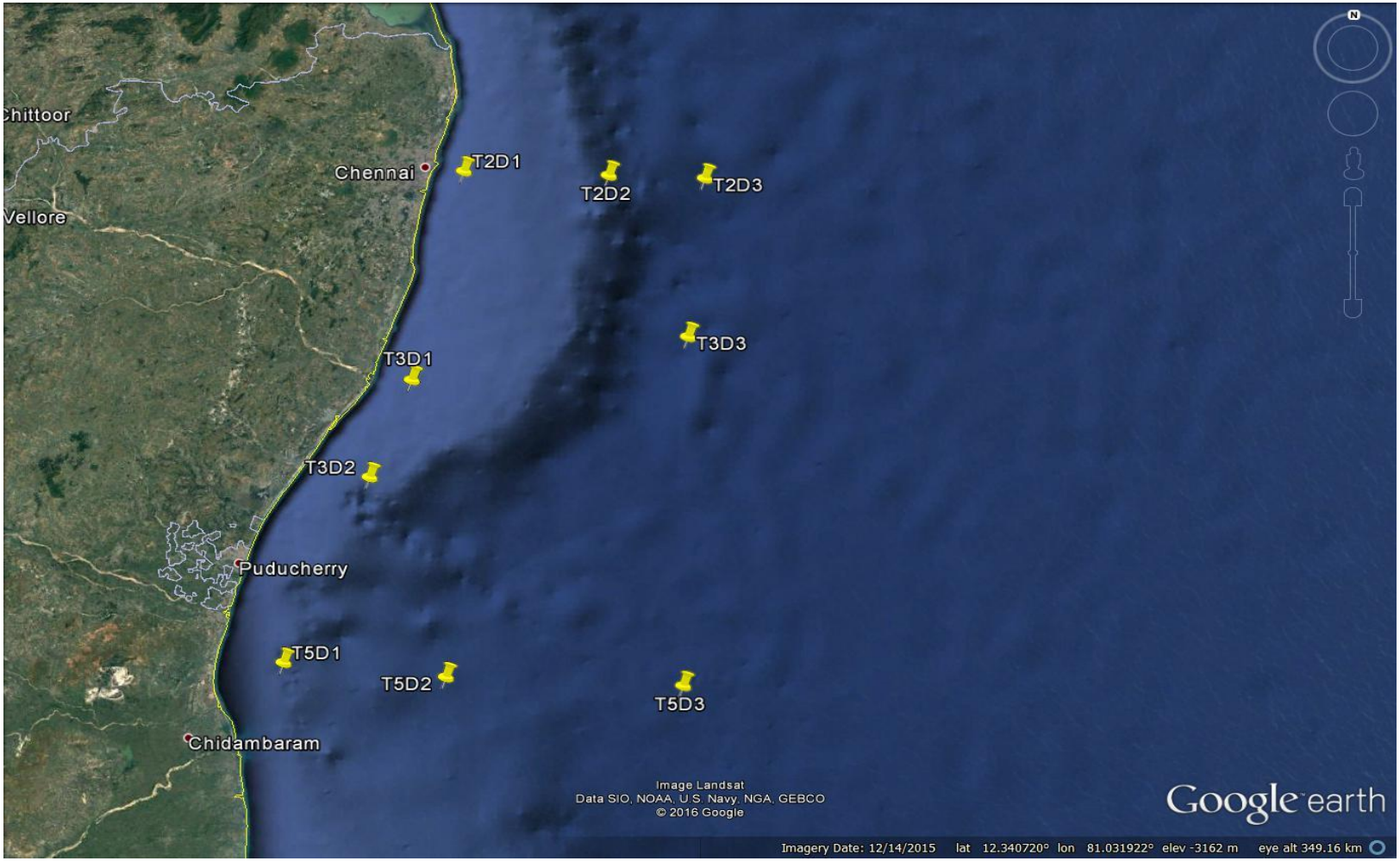
Methodology

Method for weather prediction ,emission estimation and radiative buget for climate forcing analysis:



STUDY AREA

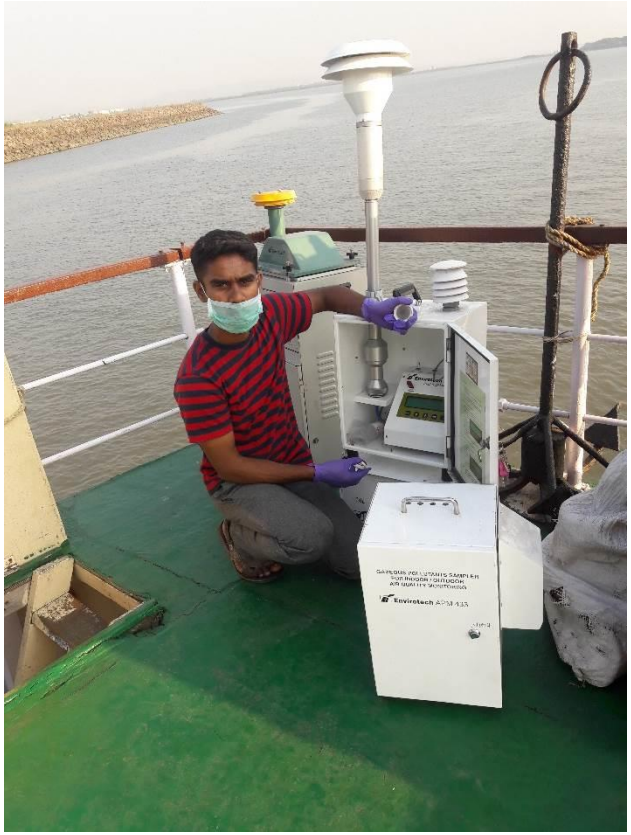
Sailing route by sagar manjusha

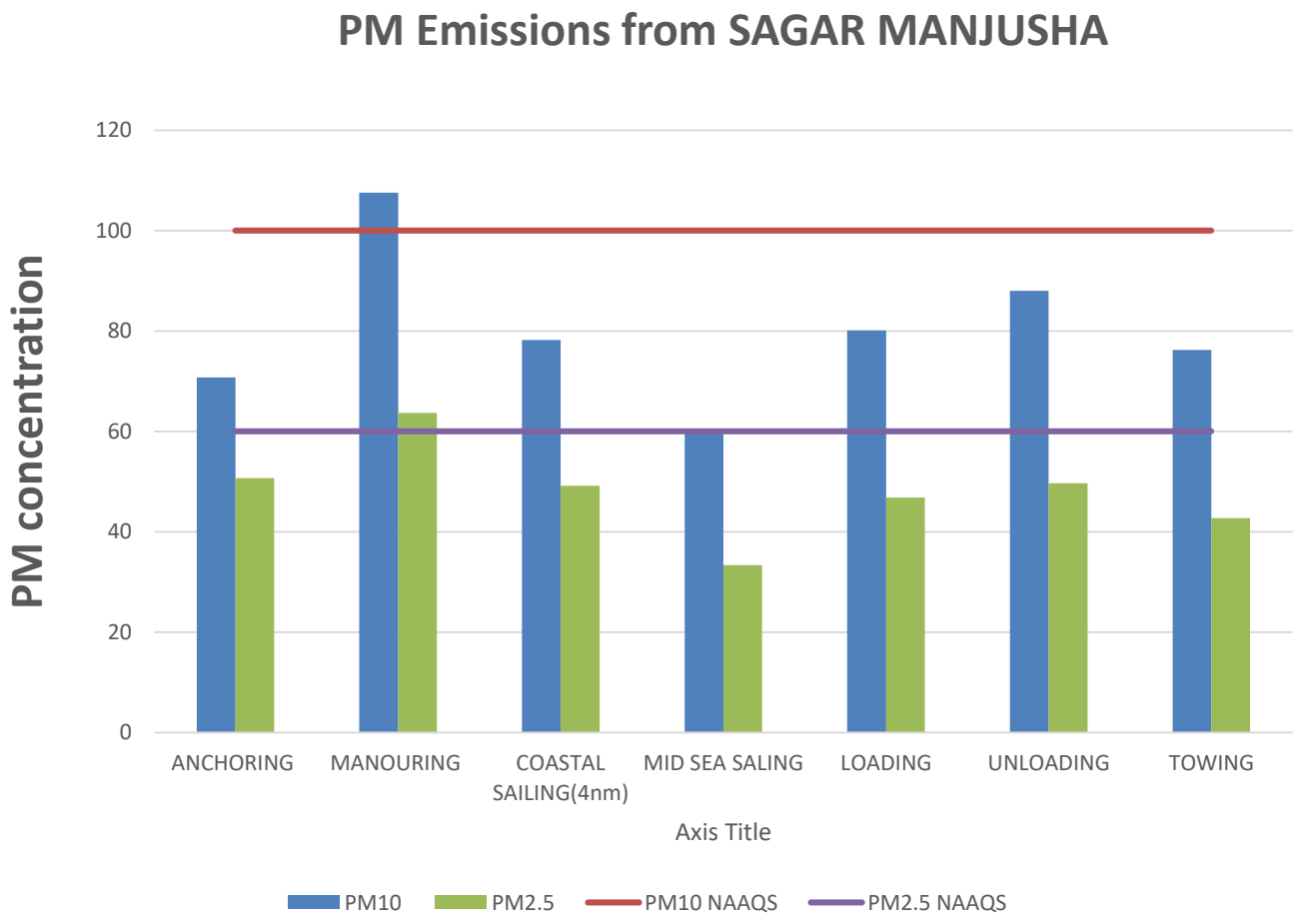


Air quality analyzer

PM10

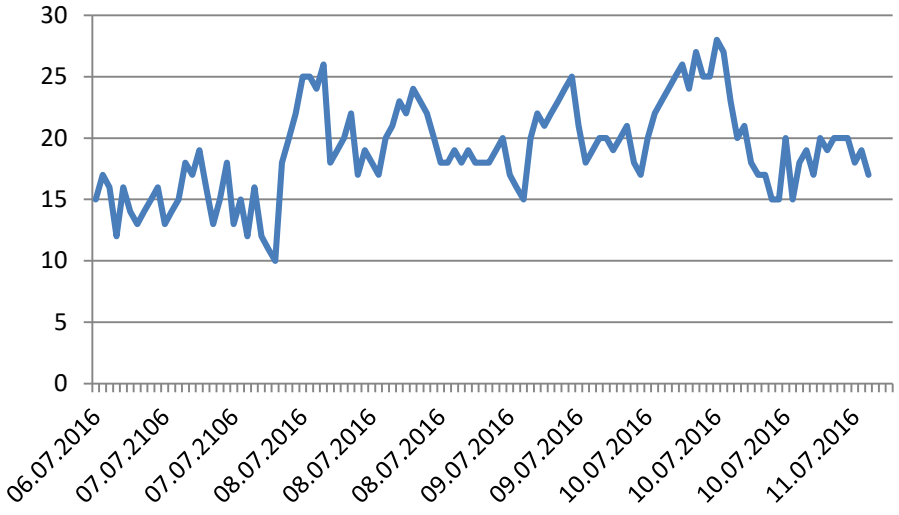
PM 2.5



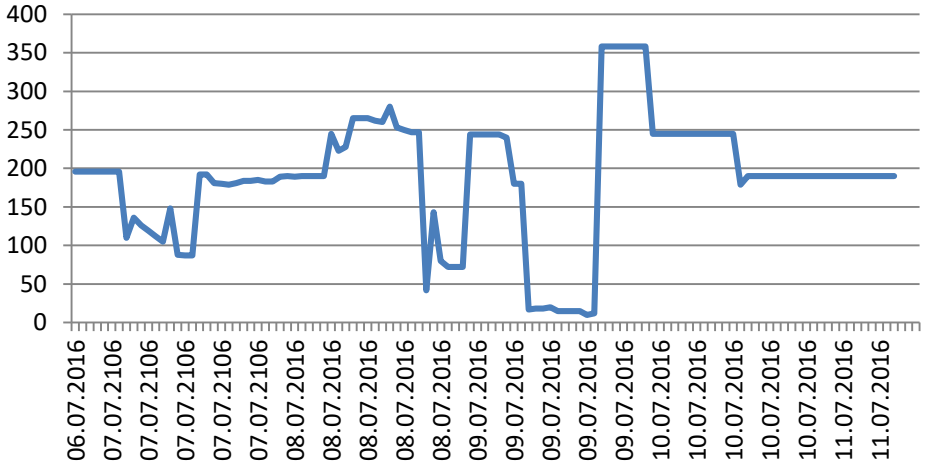

PM Emissions from SAGAR MANJUSHA
PM concentration
120
100
80
60
40
20
0
ANCHORING
MANOURING
COASTAL SAILING(4nm)
MID SEA SALING
LOADING
UNLOADING
TOWING
Axis Title
PM10
PM2.5
PM10 NAAQS
PM2.5 NAAQS

External parameters

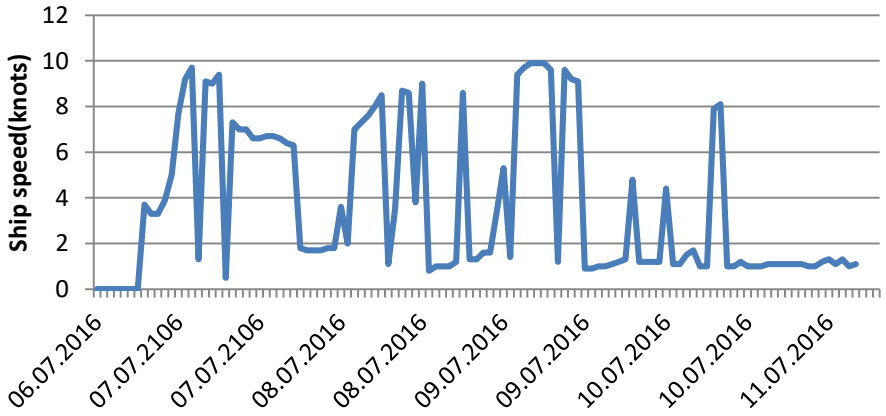
Wind speed(kts)



Ship Direction(deg)



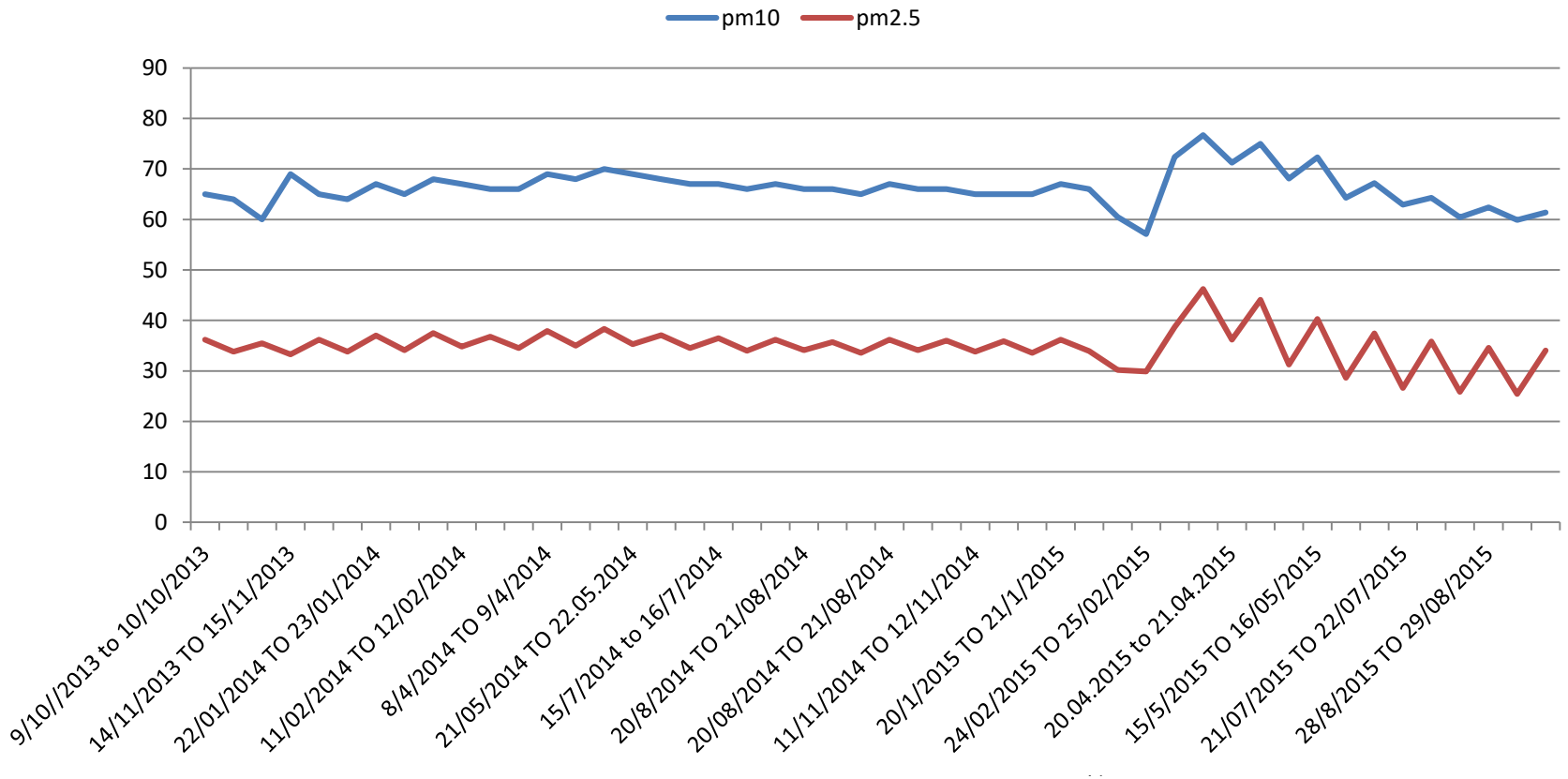
Ship speed(knots)



Elucidation of ambient air quality in Chennai port

PM concentrations

2013-2015



Conclusion

The results observed on ambient air quality in ship and port region are summarized below

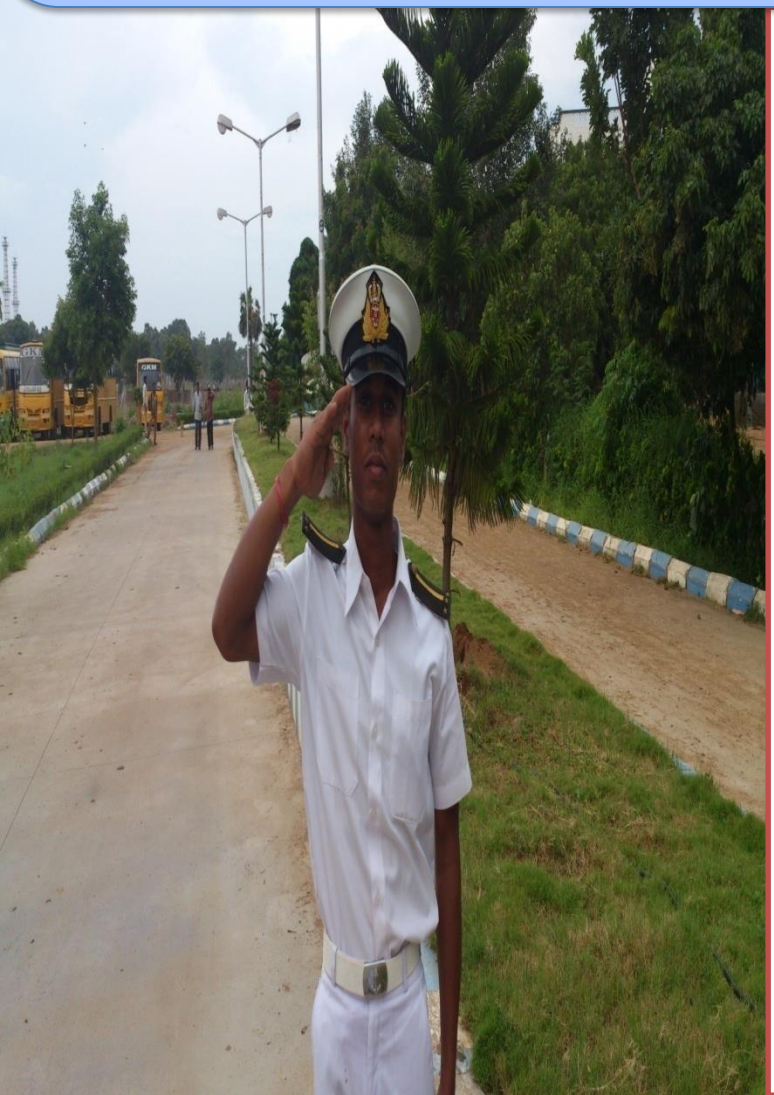
Pm range:	permissible limit
❑PM2.5>40(coastal -4nm)	
	PM2.5<60
❑PM10>85 –in port	PM10<100
❑PM10>70– in ship routes	

Future work:
Modeling the climate forcing scenario by this emissions

Let’s join our Hands

- **God created this art of cute world with green peace for the happiness of human beings and all living things but we removed althose beautiful flesh from that cute fruit and now saying this fruit is not tasty how fun it was.**
- **This is because of our habit of producing some changes in that green peace not for our basic need only and also for our extra and extraordinary needs made our planet as scored black dirty fruit with infected seed now it’s our role to enrich the vitamins in that .**
- **Don’t think that scientist and inventor only can change this world to green planet .it’s all in our hand only if we think we can it surely can. Which is from every ones role here let’s regain the green environment by some idea’s**

I LIKE TO SAY THANK YOU, BUT NOW I WISH TO SALUTE YOU ALL FOR DOING GREAT RESEARCH TO MAKE BETTER AIR QUALITY



ESPECIALLY

BAQ ORGANISER

&

PARTICIPANTS

FINAL

MY AUDIENCE-WITHOUT THEM NOTHING IS POSSIBLE