

SAC/ISRO TDP Project

1. TITLE : Development of particulate organic carbon (POC) algorithm in the water of Arabian Sea

2. GROUP/AREA/DIVISION : BPSG/ EPSA /MED, Space Applications Centre
ISRO, Ahmedabad-380015

FOCAL PERSON and PI Dr.R.K.Sarang, Ph.079 26914302/ 9426391684
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Co-PI and Team Members:

Shri S.N.Jaiganesh, Research Associate, MED, BPSG/EP SA, SAC
Dr.Arvind Sahay, Scientist-SE, MED, BPSG/EP SA, SAC, Co-PI
Dr.Mini Raman, Scientist-G & Head, MED, BPSG/EP SA, SAC, Co-PI

Principal Investigator (PI)/Collaborating Agency

Dr.Hitesh Patel, Professor

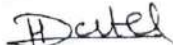
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3. BRIEF DESCRIPTION :


Ocean plays very important role in linkage to the carbon cycle of the planet earth. There are both the natural and anthropogenic sources which regulate the carbon cycle categorized as sources and sinks. The biological pump is one of the important mechanism for the carbon sequestration to the deep ocean. Phytoplankton, the recognized marine primary producers utilize new and recycled nutrients to convert the dissolved inorganic carbon to particulate organic carbon (POC) [Eppley and Peterson, 1979; Longhurst and Harrison, 1989]. A fraction of POC is then exported vertically to deep waters by various mechanisms as consumption by zooplankton and fish, excretion of fecal pellets and by Particle aggregation and sinking.

4. SCOPE & OBJECTIVES :

- (1) To develop regional algorithms for POC basing on *in situ* water sample analyzed data, radiometer and backscatter meter.
- (2) To establish the linkage of POC to optical properties and altogether to phytoplankton taxa and chlorophyll-a pigment.
- (3) To generate POC images basing on developed algorithms.
- (4) Validation of the developed algorithms.
- (5) To study the seasonal variability of POC over ASea.
- (6) Generation of POC maps for operational product.


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5. NEED ASPECT & PROGRAM LINKAGE :

This proposal is needed to understand the organic carbon variability in particulate form (POC) in the water of Arabian Sea with linkage to the phytoplankton taxonomy. There is till now no algorithm for estimating remote sensing based POC for Indian water. The in situ data need to be collected from different coastal and offshore water locations adjoining Gujarat and in the Arabian Sea water for different seasons.

This work, developed algorithm and operational product brought out from the proposed project shall be useful for coming Oceansat-3 OCM utilization program.

6. SCHEDULE

6.1 STARTING DATE : 01-07-2021

6.3 PRESENT STATUS : Proposal prepared

6.4 MILESTONE TARGET

Task	2021 (Jul-Dec)		2022 (Jan-June)	
	Q1	Q2	Q3	Q4
Coastal vessel and ship cruise based in situ data collection and analysis, use of radiometer and backscatter meter				
Development of POC algorithms (Seasonal)				
Generation of POC images				
Validation of POC algorithms				
Study of seasonal variability of POC over ASea				
Closure report generation				

6.5 EXPECTED DATE OF COMPLETION : 30-06-2022

7. COST

7.1 TOTAL COST - Original
WITH F.E. - Revised :

7.2 EXPENDITURE UPTO
END OF PREVIOUS YEAR :

7.3 REVISED ESTIMATES (C.Y) :

7.4 BUDGET ESTIMATES (F.Y) :

7.5 FUNDS REQUIRED
BEYOND F.Y. :

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Prasanna Sarangi
2
(R.K. SARANGI)

B.K. Bhattacharya
डॉ. बी. के. भट्टाचार्य/Dr. B. K. Bhattacharya
समूह निदेशक /Group Director
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अहमदाबाद/Ahmedabad 380015

8. BUDGET DETAILS

: 11.00 Lakhs

Total Budget requirement (in Lakhs INR) for Gujarat University, Chemistry Department

S. No.	Head	2021-22
1		
1.1	Research Fellow salary	3.60
1.2	Ground Truth (incl. boat hiring)	2.50
2	Travel	1.50
3	Materials (Consumables, Contingency, Miscellaneous)	2.00
4	Institutional charges (@15% of project cost as per University/Institute norms)	1.40
	Total	11.00

9. Signature of Focal Person (Team Leader)/PI :

Dr. Patel
Dr. Hitesh D. Patel
Professor, Department Of Chemistry
School of Sciences
Gujarat University
Ahmedabad-380009
Gujarat, INDIA

10. Signature of Head/GD/DD

[Signature]
HEAD AND HEAD
CHEMISTRY DEPARTMENT
UNIVERSITY SCHOOL OF SCIENCES
GUJARAT UNIVERSITY
AHMEDABAD-380009

[Signature]
(R.K. SARANGI)

[Signature]
Registrar
Gujarat University
Ahmedabad-380 009.

[Signature]
उप निदेशक / Dy. Director
इपीएसए / EPSA

[Signature]
B.K. Bhattacharya
डॉ. बी. के. भट्टाचार्य / Dr. B. K. Bhattacharya
समूह निदेशक / Group Director
बीपीएससी - एप्सा / BPSG - EPSA
अंतरिक्ष उपयोग केंद्र (इसरो) / Space Applications Centre (ISRO)
अहमदाबाद / Ahmedabad 380015

UTILIZATION CERTIFICATE

GU-SAC-ISRO Project (Year: 2022-23)

Budget code: 0402146

Project Title : Development of algorithm of Particulate Organic Carbon (POC) in Arabian Sea.

Principal

Investigator : Prof. (Dr.) Hitesh D. Patel

Participating

Agency & address : Department of Chemistry, School of science, Gujarat University, Ahmedabad-380009.

Amount Received

From SAC-ISRO : 2nd Instalment = 8,50,000/- (Gujarat University Receipt No: 317, Dated: 16-07-2022)

Certify that an amount received from SAC as above for the GU-SAC-ISRO Project has been spent for the purpose for which it was sanction as under:

Sr. No.	Expenditure Head	Opening Balance (Year 2021-22)	Received Grant (2 nd instalment)	Available grant in 2 nd Instalment	Expenditure (Year 2022-23)
1.	Research Fellow Salary	47,000/-	2,23,000/-	2,70,000/-	2,70,000/-
2.	Ground Truth (incl. Boat hiring)	-NA-	2,20,000/-	2,20,000/-	2,20,000/-
3.	Travel	30,177/-	2,00,000/-	2,30,177/-	2,30,177/-
4.	Material (Consumable, Contingency, Miscellaneous)	-20,278/-	1,57,000/-	1,36,722/-	1,36,722/-
5.	Institutional Charges	-NA-	50,000/-	50,000/-	50,000/-
6.	Balance at end of the year	56,899/-	8,50,000/-	9,06,899/-	9,06,899/-

The Expenditure as above has been incurred as per rules and procedure of Gujarat University and has been properly accounted for in the books of accounts. The relevant records are retained in this organization and are audited/subject to audit by our auditors.

Principal Investigator

HOD

Accounts Officer
Gujarat University,
Ahmedabad-380009.
Chief Account Officer

Registrar
Gujarat University,
Ahmedabad-380009.
Registrar

Dr. Hitesh D. Patel

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PROFESSOR AND HEAD
CHEMISTRY DEPARTMENT,
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