APPLICATION FOR ACCESS TO INTERNATIONAL ARCTIC RESEARCH FACILITIES AT NY-ALESUND, NORWAY

(DURING NOVEMBER 2023 to MARCH 2024)

Expedition Information :

Expedition To : Antarctica **Expedition Year :** 2023 **Expedition Duration :** Winter **Expedition Number :**

Name of the Principal Investigator: Dr. V GOPALAKRISEINAN	**Designation :** SCIENTIST F
Institute/Organization/University : INDIAN INSTITUTE OF TROPICAL METEOROLOGY	**Highest Degree :** PHD
Address :DR HOMI BHABHA ROAD PUNE	
Mob :9423243026	**E-mail :** GOPAL@TROPMET.RES.IN
Desk :	**Personal Web Link :**
Field of Specialization : ATMOSPHERIC SCIENCE	**Diet Details :**
Name of the Co-principal Investigators: Dr. Dr S D PAWAR	**Designation :** SCIENTIST G
Institute/Organization/University :	**Highest Degree :** PHD
Address :INDIAN INSTITUTE OF TROPICAL METEOROLOGY	
Mob :9881441198	**E-mail :** PAWAR@TROPMET.RES.IN
Desk :	**Personal Web Link :**
Field of Specialization : ATMOSPHERIC SCIENCE	**Diet Details :** Veg

Title of the project : STUDY OF LIGHTNING and GLOBAL ELECTRIC CURCUIT OVER ARTIC IN CLIMATE CHANGE SCENARIO

Major Discipline : Atmospheric Science

Sub-theme : Lightning studies

Please Specify Whether Project : New

Scientific Keywords :
LIGHTNING, GLOBAL ELECTRIC CIRCUIT, ATMOSPHERIC ELCTRIC FIELD,CLIMATE CHANGE

Relevance to the Study Area :

Occurrence of lightning over Arctic region has reported in recent years. This lightning occurrence over Arctic can be related to ice melting triggered by increase in temperature over the region (Holzworth 2021) However,there is no study about electrical characteristics of clouds occurring over that region. Changes in lightning patterns over the globe due to climate change also have been reported by many scientists. This change in lightning activity can severely affect global electric circuit. Hence, the proposal study the electric field , electric conductivity and Maxwell current density over Arctic to understand electric nature of lightning producing clouds over Artic region and the variation in global electric circuit due to climate change.
Generally, positive and negative charges reside in upper and lower portions of the thunderclouds. These types of clouds are known as normal polarity thunderstorms.Recently, it is observed that in some thunderstorms there is a pocket of positive charges in lower portions also, known as Lower Positive Charge Centre (LPCC). Further,inverted polarity thunderstorms are prevalent in thunderstorms that form under some specific conditions. In spite of many laboratory and field experiments all over world, the charge distribution and charging processes inside thundercloud have been not understood fully.Hence, it would be interesting to study the charge structure of lightning producing thunderclouds to know the electrical nature of thunderclouds over Artic region. It would be povel study in Arctic region.
Many studies in recent years over the world and especially over India and south east Asia(Qie et al.,2021) have shown increasing trend in lightning activity. For example over India during 1995 to 2013 about 25% increases in ightning activity is observed (Prasanna et al,P023). This increase is attributed to increase in Imoisture content due to increased sea surface

Background :

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Hypotheses / Objectives :

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Detailed methodology :

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Expected outcome :

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Work plan :

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Time schedule for proposed project :

Result of previous studies :

Facilities / Infrastructure available : Yes
Value : 123456789

National status : Yes
Value : 123456789

International status : No

Logistics information :

Transport : Helicopter **Duration :** **Total drop point :**

Purpose :

Instrument information :

Short name : **Long name :**

Make : **Model :** **Year of purchase :**

Year of calibration :

Storage information :

Type of Storage needed : **Size of the storage :** **Orientation :**

Sample type : **Lab required :**

Miscellaneous information :

Miscellaneous :

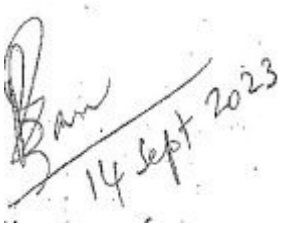
Details of passport :

Name of field personal	Passport Number	Date of Issue	Expiry Date	Place of Issue
Dr. V GOPALAKRISEINAN	5565645611212121212121212	01-01-1970	24-10-2023	
Dr. Dr S D PAWAR	5565645611212121212121212	01-01-1970	31-10-2023	

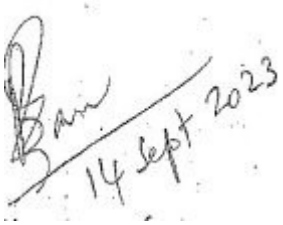
Pertaining to Project related (in a single Pdf)	View File

Endorsement from the Head of the Institute/Organization

1. Certified that the institute has no objection to the implementation of the above project and the participation of the above officials in the proposed field studies at Ny-Ålesund, Norway.
2. Certified that the PI/Co-PI bears the requisite expertise to handle the above project.
3. Certified that the requisite laboratory infrastructure and administrative facilities will be extended to PI/Co-PI throughout the duration of the above-mentioned project.
4. Declared that data/metadata and expedition report will be submitted as per NCPOR's guidelines.



Signature of PI



Signature of CO-PI

Endorsement Certificate

View File

Date: 03-10-2023

IP Address: ::1

Review 1
This project may be accepted.

Review 2
It is ok and recommended.