the supreme Dept as in DAE and made some unacceptable remarks in the file, thus slowing the process. It was ~~one~~ regarding an MOU with Smithsonian Astronomical Observatory (SAO) — needed for ~~launch~~ tracking of one of our satellites probably Bhaskara, through their laser network (in addition to ~~the~~ radio frequency tracking for which ISRO had arrangements) Laser tracking would add to the accuracy.

I was so angry & annoyed that I had to bring

this to the attention of SD as otherwise he might ~~make~~ give some wrong information to SD. ~~More~~ I was not worried about it so much because SD cannot be easily deviated by him. But remarks in a work file delays the process.

My handwritten notes follow ADD as 104, 105, 106. SD's remarks "Rajan: Obviously Shri Mer is out of the picture - SD do not want re-research of the processing :: just a comparison with the steps in the Kavalur case because

of obvious possibly comparisons later — Bring papers to me ~~SB~~ — S. Dhawan — full signature by him"

A clear decision. However since a nonsensical note was written by a DOS officer, SD wanted to nullify it with a small comparison note

These were but signs of what could happen to the fragile ~~DS~~ DOS-ISRO interface! Even when the top officers were very much in time (in this case Sh SK Warrier)

→ Continue

✓ ~~to 4~~ 105, 106.

Confidential

104

Rajan — Obviously Shri Mer is out of the picture. I don't want re-research of the process.

Sub: SAO MOU processing

(just a comparison with the steps in the Kavalur case because of doing possible comparisons later. From the papers to me, I am quite amazed and pained at the slip-shod remarks made by Sh Mer, Deputy Secretary, DOS recently (on 28.4.80) to dispose of the file.... Remarks like "I think we can go slow on this ..." are quite unwarranted. It is no pleasure to anybody to rush through & it is a proposal in general since okayed by Chairman & Director, SHAR. From the day Chairman okayed a general go-ahead after receipt of letters from Dr. Vrebolovich et al around Sept 79 we have been coordinating quite a bit with Director SHAR, Sh S.K. Warrior, et al. keeping chairman informed. I cannot think we rushed !!

A detailed note was prepared on the security / sensitivity aspects by the Committee of ProjURR, Pant & Rangan; commented by us; remarked by Sh SKW. We had pulled out all earlier correspondence relating to Kavalur from INSA, SA to RM related etc. A note has gone on the subject to SA to RM from Secretary DOS. (Man hours spent are not inconsiderable.)

MOU was cycled through with great care through Sh SKW, Chandra, Pant et al later made a comparative table of para wise comments from persons, cycled through JPS, incorporated his remarks and finally placed to Sh Das, AS/DOS

PT.

105

& before placing to Chairman as the final draft could be processed through "DOS" also....

I am amazed that all these detailed scrutinies have been brushed off by a stroke of pen by Sh Mer with his judgement (of slowing down) & 'irrelevant' remarks on Secrity/sensitivity aspects though I have mentioned in the file itself that these aspects have been considered by Secretary, DOS & sent to SA to RM. This is a parallel action towards an MOU... I am glad that Chairman (Secretary DOS) has made some remarks to save the party situation on DAE referral etc (that "I don't think it is necessary etc)... Anyway I will pull out the earlier papers & have to go through the "paper work".

.... Probably this happened because Sh Das was tied up with other work & marked the file to DS, DOS. I had had 'no problem' from 'DOS' otherwise. But this 'marking off' & slip-shod treatment given by Sh Mer shows the fragility of ISRO HQ's role in this

matter. DOS can sit on judgement de jure on anything: A paper so carefully cycled through HQ with persons like JPS & YSR (~~xxxx~~ pl. note their experience, position, and even grade, if one were to pull that!) does not by itself deserve the stamp of DOS certification which can be given ~~&~~ only by a DOS person — however remotely connected he may be!! Once a file is mucked up the person "concerned" has to put in more effort: I am forced to recall what Dr. VS says, that those who have to do have to justify & not those who object!!!....

At least, as a positive part Chairman may consider formally declaring that any DOS scrutiny of papers from so & so from ISRO HQ need be done only at such & such level and if they have tied up (in DOS) directly, the papers can be sent to Secretary, DOS. Otherwise I am afraid ISRO can slide to an IMD situation. Regds

Add ✗
104, 105, 106
paper note

Compared to usual SD standards it was a strong note. He would have been worried about the ~~maintenir~~ maintaining the ~~dlte~~ delicate balance between DOS & ISRO.

Secy DOS had to step in to show the limits to DOS officers (often at lower levels — as he ~~came~~ was always in ~~touch the~~ direct ~~dlte~~ touch with the only two top officers JS & AS).

How much of it was mainkined beyond 1988 is not known to me. Tipping too much

to ISRO side or tipping to the advantage of JS/AS DOS along as they were always nearby is not good. That is where the role of Scientific Secretary, ISRO comes in, as envisaged by SD; he had articulated to me a number of times about the functioning of the TROIKA (AS, JS, DOS & SS, ISRO). By Sc. Secy ISRO was reduced to mere staff officer or hatchet person for Chairman ISRO, it will tilt the balance. May be perhaps the unfortunate DEVAS

episode had something to do with this imbalance. As in Ayurvedic terms: Kapha, Pitta and Vaadaa!

During K Radhakrishnan's Chairman ISRO period (a person who had been groomed from the period of SD Italy citizen this balance) there were imbalances; G. Balachandran's sudden removal; Nadadur's entry; S. K. Das's (former AS DOS & MF DOS) undue interference in the normal mode of working of AS & JS of DOS; ~~also~~ SS ISRO

role greatly reduced — which might have started much earlier with his predecessors. That post ~~that~~ itself was treated as an accomodative role for persons who could have been Directors of Centres but could not be accomodated due to various petty political (tribal) reasons.

Just as ~~we~~ I had problems from Meis role on an urgent ISRO programme, there were petty problems ~~for~~ from ISRO HQ Scientists. It was not the type like JPS who

who played "big politics". It was a petty one — but unnecessarily time consuming for me. ~~It was~~ That was from Dr. S.C. Chakravarty (SCC) & Dr. V.R. Rao (VRR) — both inherited problems from PRL; they were brought from PRL, Ahmedabad by PDB, like SK Dalta — SKD was very unassuming and fitted into a role of ISRO Publications well & did a good job.

SCC & VRR, unlike the earlier traditions of PRL did not go abroad for doing Post-Doc research after their PhD in PRL. SCC did some

work in D-layer ionosphere for Ph.D.
VRR in airglow. SCC did not
do any research after that. In the
peculiar nature of ISRO HQ formation
after PDB's going away he was
"pumped to" believe (hagly by JPS)
that he was also a SPAG member
representing Space Science. His
knowledge base was limited. He
was too lazy to study things I
used to suggest to him. Proj RR
Daniel ~~[illegible]~~ who was inducted
to oversee Space Science Advisory
Committee on Space Science (ADCOS)
was very uncomfortable with him
But for JPS it was a good way
of additional irritation to me!

SD's own detailed knowledge in Space Sciences was limited. For me the two initial years of grooming in PRL as Research Scholar was very useful as also some later follow up studies at GSFC, NASA. Then I was a meticulous reader of NASA, NAF/NAS studies on frame in these areas. Issues to summarise to disseminate to University groups. SCC was given RESPOND work to assist.

VRK was different type. He knew how to publish papers. His airglow work was extended by him to "ground truth signature" studies & publications. It tagged on

to RDS for some time to do research in ARISE experiment. In some sense RDS and VRR were similar; They wanted the "perceived power" of being in HR but not take the pain of programme management; and do research & publish. RDS had a better overview of Remote Sensing as he was in USA. VRR did not have a clue; still he wanted to be in EOS office. I had advised him several time to go to NRSA (as he was afraid of SAC!) and to I ~~will~~ would ensure budget for his R&D project & He wants

He was thus a ~~burden~~ burden on EOS office!

He and SCC got together to propose research project sitting at HQ — ~~as~~ a research ~~project~~ proposal which would not easily go through peer review in the Centres — SAC, PRL or NRSA!

Proximity to Chairman ISRO was used by them. ~~The burden~~ SD wanted to be nice but was cautious to put the burden on me.

I had to send a strong note to SD. See the handwritten notes with enclosures.

Under instructions from Chairman ISRO // 116, 117, 118, 119, 120, 121, — 127.

I had to go through such pains too! Nothing much was done by SCC/VRR.

For Chairman's eyes only

(116)

To: Chairman, ISRO

From: Y S Rajan

1. Chairman may pl. see the attached note from him to Drs. SCChakravarty & V R Rao, with a copy endorsed to me. I did wait for Dr. SCC / VRR to discuss with me. I could have gone and discussed with Dr. SCC. Firstly I was very busy with INSAT notes, liquid work & various other notes ~~[illegible]~~ Chairman had asked me, to work on. I had just time for somebody to barge in, for discussions.

2. I don't want to squawk." I am finding consistently that the operation of Dr. SCC through double channels does cause considerable problem to me. A note is sent by him to Chairman with a copy to me; Sometimes Chairman marks the copy to me to examine it in a particular way. By the time I give some general thinking to Dr. SCC to work on further / a couple of days I find that / he sends a note that he has discussed with Chairman & he has instructed the following. This happens recently with MAP report which I think is a poor formulation — both scientifically & managerially / I was about to write a critique. Thus any attempt to give some considered thinking / or direction by discussion becomes infructuous. This has become a regular feature on RESPOND related & other matters.

3. While all interact and go about, and especially many come to my room which is always open & accessible to all — I don't understand the difficulty of Dr. SCC to come &

consult me before sending certain notes. I do think I have some capability to suggest some good ideas & I do it often. I do go to his room sometimes to discuss & I find him coming only rarely. It should be noted that my "busyness" is more — just because I handle more items. Probably Dr. SCC considers he is independent & therefore the link with me is at best through info copy mode

4. I don't want anybody to come to my room to discuss with me if I can avoid it: but my office duties demand that I should give priority to Chairman, his tasks, urgent ISRO/DOS work etc. I don't think it will be wrong for me to expect that some persons at least could come & chase me up for discussions — not expecting me to run after them.

5. With respect to this Chairman's note, the term "Rajan will coordinate" would mean for Dr. SCC that I have to find out typist time & arrange for other items he has done by discussing with other colleagues. OT regulation or can restrictions or other competing demands is for me to solve! Though I could give useful suggestions to the technical aspects — I never insist on my name for anybody's works for which I help! — it may well be it is handled independently; I don't mind. But to be reduced to a staff or a person for making administrative arrangement for everybody in ISRO HQ is really a difficult situation to be. I wish I could, but time in a day is only 24 hrs! Therefore I should at least be in a position to ask to do in certain ways.

6. While Chairman is free to decide who all should operate independently, if in some of these matters some 'control'/direction by me can be implemented, life will be easier at least to that extent.

Raj
1/4/80.

To give some idea about the support available for each scientist at ISRO HQ

(1)	Dr. B.S. Rao & Shri Mahanavelu	One PA. One Jr. Steno one Attendant.
(2)	Dr. K.S. Phabha & 3 persons with him (one of these person is more a Orbit scientist & the a programmer).	2 Stenographers
(3)	Dr. V. Siddhantha & Sastya.	2 Stenographers.
(4)	P. Sudarsan	1 Steno (He sometimes shares with Dr. VS's persons)
(5)	P.N. Jayaraman	1 steno (Borrows from YSR's office for work when needed)
(6)	Y.S. Rajan, Setty, E.K. Kutty, Jacob Nixon, Dr. Tiwari & Chandra-Sekhar. (6 persons) + Chairman's letters typing.	4 Stenos 2 typists Normally as a pooled operation to avoid peaks & troughs 1 Filing roaring clerk in YSR's office.
(7)	Krishna Prasad | Krishna-murthy | V.R. Rao (3 persons)	1 typist. (They also share YSR's office staff).
(8)	JP Singh + 3 Scientists + Chairman's office related typing	3 Stenos 1 typist
(9)	Dr. SCC + one Assistant for him.	1 Steno + 1 typist.

INDIAN SPACE RESEARCH ORGANISATION

HEADQUARTERS

MEMORANDUM

119

For : Dr. S.C. Chakravarty
Dr. V.R. Rao

File / Ref :

From : Prof.S.Dhawan
Chairman

Date : 22.3.1980

Subject : Your proposal on sun-weather relationships.

Your suggestion for a personal study on the lines you have proposed is approved.

However, I would suggest that you conduct most of the scientific aspects of the work yourselves with the assistance at ISRO Headquarters, including computational assistance, etc., arranged through discussion with Rajan and other colleagues. Rajan will coordinate the assistance you require. No hiring of any staff will be permissible at ISRO Headquarters. However, should you wish to interact and utilise student assistance from interested students in the Bangalore University or at the Indian Institute of Science through a small payment for their work, this would be possible on identified specific elements.

S. Dhawan

cc: Shri Y.S. Rajan

55.1057
21-8-80

INDIAN SPACE RESEARCH ORGANISATION

HEADQUARTERS

MEMORANDUM

120

For : Chairman, ISRO

File / Ref : MAP-2

From : S.C.Chakravarty and V.R.Rao

Date : 18.1.1980.

Subject : A proposal on sun-weather relationships.

1. Chairman may kindly see the enclosed proposal on sun-weather and solar climatic relationships. Though much effort has already been made to derive the correlations between various solar, atmospheric and weather parameters, the validity of these relationships have often been questioned due to insufficiency and filtering of data in many cases. In the proposal we would like to independently analyse the uptodate data to assess the actual situation of these correlations. This evaluation would be helpful for a policy in funding such proposals by ISRO in future.

   In short, we would like to search what correlations actually exist, and what are the confidence limits that one would assign (this has normally been avoided in published papers).

2. For the work to be carried out we would require a Scientific Assistant B (B.Sc with computer background) for a period of at least one year. All other facilities including the computer access is available at ISRO HQ.

3. Chairman is requested kindly to give his views and consider the proposal for implementation.

Regards.

cc: Shri Y.S.Rajan, Scientific Secretary, ISRO.

35-312
18-1-80

121

A proposal on the studies of Sun-weather and Solar Climatic associations

ABSTRACT

Efforts made during the past few years to establish solar weather and solar climatic relationships have raised various scientific questions on possible governing mechanisms. Both from possible applications of these studies to weather forecasting and to improve our understanding of atmospheric/ meteorological phenomena, this application oriented field of research deserves more attention by the Indian scientists. Except for one or two individual interests, at present there is no worthwhile coordinated effort in India to carry out investigations which are relevant to sun-weather relationships. For initiating activity to the extent that may be necessary in the Indian context, this proposal may be considered as a first step.

In this proposal first an attempt will be made to review the state of knowledge and then computations made to derive various statistical relations between solar-atmosphere-weather processes based on available data. Results obtained would be compared with earlier available results in the Indian region for a critical evaluation of validity of these correlations. Accurate assessment of this would determine future prospects of the problem.

The work can be carried out at ISRO HQ with the assistance of a Scientific Assistant B (B.Sc. with computer background) in a period of about one year.

January 10, 1980.

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A proposal on the studies of Sun-Weather and Solar Climatic associations

1. Title of research proposal : Sun-Weather and solar-climatic effects: an appraisal

2. Investigators : V.R.Rao and S.C.Chakravarty
ISRO Headquarters, Bangalore.

3. Duration of project : 1 year

4. Assistance Required : (a) Computer time: About 10 hours
(b) Card-punching: 10,000 cards, magnetic tape and disk space
(c) One Scientific Assitant-B (B.Sc with computer knowledge), for data tabulation, computation of simple statistical relations, graph plotting and data management. This person would be required for a period of 1 year.

AND/OR

This has to be within the general constraints of HQ which will have competing demands esp. for urgent ISRO HR per se tasks. SB

(c) Assistance (computational) from existing administrative/accounts assistants on part-time basis on payment beyond regular duty hours. Such persons can be identified at ISRO HQ. At least three such persons would be required.

5. Objective of the proposal : Critical analysis of various solar, atmospheric, weather and climatic parameters to evaluate the inter-relationships of Sun-weather & solar-climatic effects. Explore the validity of different possible mechanisms governing these interactions.

-/-

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6. Outcome of the study: The study is expected to lead to a better understanding of the Sun-Weather phenomena specially with respect to tropical weather & climate. The final report would help to form the basis for future programme generation, to the extent that may be required in this field by the Indian scientists.

7. Time Schedule:

(a) Preparation of an over view or review of sun-weather and solar-climatic changes carried out to assess the status of the field. - February - March, 1980.

(b) Collection of data on solar/weather/climate parameters for a period of at least 11 years wherever available. - February - March, 1980

Better to concentrate on one or two factors 2D

(c) Computation of data for determining correlations between different parameters (some of the correlations already derived by other investigators would be repeated to understand if any filtering of data was used and the rationale behind such filtering) - March - April, 1980

(d) Analysis including plotting of correlation coefficients, super-posed epoch analysis, spectral analysis etc, using all possible parameters which are expected to provide necessary insight to the problem of sun-weather and solar-climatic effects. - April - October, 198(

(e) Summary of findings & report - October- December, 198(

-/-

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8. Background Justification:

Despite the great amount of work on Sun-weather relations, little convincing evidence has yet been produced for meaningful correlations between sun-spot cycles and weather or climate although evidence for correlations between weather and solar events on time scales of days appears to exist at high latitudes.

Unconscious manipulation of data may be a scientific norm and a critical-evaluation is required towards this. Shorter time-scale weather effects should be carefully analysed for an understanding of the mechanism, considering the problems of statistical approach. Whether variations in solar outputs affect terrestrial weather and climate and if so, to what extent and through what mechanisms, is the question that is being investigated by various scientists.

Although apparent correlations exist, the energetics of solar variability are too small to directly affect tropospheric or stratospheric processes significantly. The causative mechanisms would most likely be subtle and may trigger changes in ozone concentrations in the stratosphere and modifications of electrical characteristics of the atmosphere. The main topics of concern are:

- o Climate variability due to changes in solar insolation;
- o Drought, thunderstorm activity, atmospheric vorticity;
- o Statospheric-tropospheric exchange processes;
- o Global pressure pattern variations and atmospheric kinetic energy.

Main studies thus include:

- o Correlation studies;
- o Solar influences on global circulation and climatic models;
- o Solar and upper atmosphere couplings including electricity;

-/-

o Planetary motions and other indirect factors;

o Role of minor constituents;

The main problem areas in Sun-Weather relation studies can be ~~mentioned~~ summarised as follows:

o Dynamic and/or radiative mechanisms

o Tests of different scenarios

o Global perspective

9. Approach:

Some of the main problems that would be undertaken in this study are highlighted below:

(a) Planetary motion and planetary waves-sunspots and climate:

The potential relevance of motion of the giant planets to the sunspot variations and the transmission of gravitational torque in the solar system that is expected to cause changes in the global and local vorticity patterns to low inertia materials such as solar photosphere and the terrestrial atmosphere, need to be studied in detail. This may provide a mechanism of control of the terrestrial atmospheric circulation and climate by extra-terrestrial forces either directly or through modulation of solar activity.

(b) Atmospheric electricity (thunderstorms) and Sun-weather:

The correlation of the thumderstorm frequency and solar sector boundaries has been earlier studied. The variation in thunder-storm numbers involves large enough energy changes to account for certain changes in tropospheric circulation. It is suggested that solar controlled conductivity variations in the lower stratosphere (over thunderstorms) control current flow in the global circuit.

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Through simultaneous observations of the Sun, the solar wind the interplanetary magnetic field, particles entering the atmosphere, atmospheric electrical responses and cloud physical parameter, it may be possible to identify the causual chain by which variable solar activity may be modulating the weather. The coupling between the upper and lower atmosphere is to be studied including the local weather phenomena.

(c) Analysis of mean sea-level pressure and pressure at different levels, surface temperatures and ozone amounts in the atmosphere :

Recent studies revealed correlations between stratospheric intrusions triggered by solar action and the Forbush effect and are also coupled to the increase in ozone concentration (for high latitude stations). This analysis has to be carried out at different places. Spectral analysis of long-interval temperature data may show evidence for solar variations. An obvious conclusion arrived at earlier is that there are inherent problems in studying regional climatic conditions and their associations with other stations data using power spectrum analysis.

(d) Solar flares and weather effects:

Strong solar flares cause atmospheric circulation changes or alternatively change in the mass and temperature distribution at middle and high latitudes starting less than 12^h after the solar eruption. Delayed effects are also reported. The connection between these effects is insufficiently known, and the position in the low and equatorial latitudes is not clear.

The data (pressure, temperature & winds) following a solar flare at many Indian latitudes is to be analysed with a comparison of the effects in the normal solar conditions. The energy deposition in and dynamic responses of the terrestrial atmosphere to solar flare generated shocks and other physical processes such as magnetic storms and local heating are also to be investigated, for tropical and low latitude regions.

(12)

10. Data Analysis aspects:

The data analysis plan would be directed to explore the following characteristics in relation to sun-weather relationships based on the availability of the data:

- o Spectral density functions for drought area index
- o Solar activity forecasting (aspects such as cycle minimum, time of the cycle, composition and errors data base)
- o Models of the earth's response to astronomical variations of insolation
- o Analysis on surface temperature/pressure
- o Effects of solar flares on the atmospheric circulation
- o Drought and solar cycle relation (22 years)
- o Energy calculations (theoretical) in the middle atmosphere as it relates to Sun-weather effects
- o Solar magnetic fields and tropospheric circulations
- o Ozone and its different periodicities and solar control
- o Low pressure troughs and VAI over long period
- o Correlation coefficient between forecast and observed vorticity area index (VAI) (500 mb)
- o Superposed epoch analysis of vorticity area index (VAI) at 300 mb vs solar sector boundary data

Too general all aspects are cannot be attempted by a single group — bear alone any one of us. Two persons. Two words of keeping too wide a net like this may mean no fish at all!

Some of the data available in published form will be acquired from different sources (IMD, IIG, IIA, VSSC, ICAR and WDC-A).

.....

116 (5)
Dec 82

(128)

I was getting fed up to work in this mode & though I was alert and contributing well to ISRO needs & meeting SD's requirements.

I therefore had sent a note to get me out of ISRO, at least for a while. I a note 18th April 1980 (a day after my birthday as I mention in my note).

I really had a desire to get involved with high-science planetary research, but through the ~~Govt~~ spacecraft missions for them. So I had requested SD to give me chance in USSR or JPL, USA

(129)

I really was fascinated by JPL's planetary spacecraft.

Has SD arranged for it, my life would have been very different.

My note to SD on this matter (handwritten — marked personal) follows

Add in page 130, 131, 132

Nothing much happened. SD was not prepared to leave me from ISRO HQ.

PERSONAL — 1 — (130) 18th April 1980

Q Sub: My job(s) for the next 3 to 5 years

We have discussed a few times; I have sent numerous notes. Considering various aspects, my considered opinion is as under:-

I should be away from the ISRO/DOS scene at least for the next 3 to 4 years — this, of course, after my commitments to assist Chairman in moving the ISRO programme approval. ~~is~~ This means I should plan on departure by end-80; early 81 which would require planning right now. Hence this note requesting Chairman to help me to be away from the scene.

Three distinct possibilities exist:-

(i) With Chairman's good offices with Acad. Petrov & Acad. of Sciences, post me in an Institute of USSR dealing with Spacecraft design, management etc. Could be on planetary missions, manned crafts or even remote sensing/communications. This has been in my mind for sometime. I could work along as a team with the Soviets & also have an understanding of an entirely different System in engineering, design, T&E, R&QA etc.

(ii) Alternatively to be posted in a Planetary Spacecraft Project of JPL as I was with ATS-6. It will be definitely worthwhile for an ISRO person to go through this exercise at close quarters (P.T.O.

and (iii) Posted for 2 or 3 years to some other agency / Dept of Govt of India. I am not clear where: Planning Commission (?), Industry (?)

I would prefer (i) as it will be an entirely new experience of use to the country. Option (ii), of course, will be professionally most profitable & stimulating; the technical know-how derived can be used for other areas also & also fortune. Option (iii) is more to find a way out (from ISRO) for a while; I am a little doubtful of good places to go to. Chairman may know ~~it~~ better.

The fact that I am moving small to big matters for ISRO / DOS / HQ etc does not mean I am at ease with the System: I have told enough on the subject including the Scientific Secy, ISRO's job. But I feel, it is best for me to be away from the scene after the Programme approval. ISRO ~~would~~ definitely be unaffected by my absence, at that stage. However, my continuance with ISRO may push me into a cul de sac. I require a renewal, which I think, is in the interest of organisation & myself personally.

I completed 36 years yesterday (37 yrs official records); About 16 years in PRL / ISRO of which 6 years at ISRO HQ.

(P.T.O

With the power-centres, personal equations etc that are entrenched in ISRO/DOS, for a "middle level" person like me the best possible bet for renewal and perhaps an opportunity to get out of vicious cycles of organisational rut would be a VSSR or JPL experience as suggested above.

Years & months have galloped. One cannot delay matters too long. If Chairman is desirous of helping me in the above, then USSR/JPL contacts by Chairman, & govt approvals etc need to be processed. There is very little time left now — 6 to 12 mos are too short for these!

Therefore I request help.

Raja

18/4/80.

ADD ~~Dow~~
~~13(1), 132, 133~~
~~Handwrite~~
~~18 April 1980~~

(133)

I was keeping the pressure ~~on~~ on SD

This was about a possible deputation posting in INMARSAT. Min of Commns. used to hog ~~the~~ such postings. They don't send to other departments in time and send their candidates. ~~I~~ I was aware of this. But if SD decides & tell Cab. Sec. things will be different.

My note to SD

He had written. Pl. discuss
dated 28/4/80

ADD

133, 134.
slip

(133)

Personal

ISRO HEADQUARTERS

MINI MEMO IMMEDIATE

Chairman, ISRO

Chairman may pl. see the
vacancies announced by
INMARSAT. Flag A, B show
a positions for which I could
fit. June/Sept so appear
to early. Last date of
application (to go to Delhi) is
1 May 1980.

Since the situation is complex,
may I request Chairman's
advice. Rayaji Pl. discuss

Raja

(134)

MOST IMMEDIATE

No. X 13011/6/80-CC
Government of India (Bharat Sarkar)
Ministry of Communications (Sanchar Mantralaya)
***

Sanchar Bhavan, ~~20~~ Ashoka Road,
New Delhi-110001.

OFFICE MEMORANDUM

Subject:-Vacanciesin the Directorate of International Maritime Satellite Organisation (INMARSAT).

.....

The undersigned is directed to forward herewith a copy of a letter from the Director General, International Maritime Satellite Organisation, London, together with its enclosures, asking for suitable candidatures for the following posts in the INMARSAT Directorate:-

1. Rapporteur, Admnistration & Finance Division (No. 80/11)
2. Technical Staff (Communications), Technical & Operations Division (Nos. ~~18x~~ 80/18-21)
3. Technical Staff (Operations Planning), Technical & Operations Division (No. 80/22&23).

It is requested that the posts may please be circulated and nominations of suitable candidates, if any, with full particulars, in duplicate, forwarded to this Ministry, immediately and in any case not later than 1st May, 1980. Applications received after that date will not be considered.

(R.R. Anand)
Desk Officer
Tel. 380849.

To

1. The Director General, Overseas Communications Service, Bombay.
2. The Director General, P&T Deptt., STG-I Section, New Delhi.
3. The WPC Wing, Min. of Communications, New Delhi.
4. The Chairman-cum-Managing Director, H.T.Ltd., Madras.
5. The Chairman-cum-Managing Director, I.T.I Ltd., Bangalore
6. The Deptt. of Atomic Energy, Bombay.
7. The Deptt. of Space, New Delhi.
8. The Deptt. of Electronics, Vigyan Bhavan Annex, New Delhi.
9. The Min. of Toursi and Civil Aviation, New Delhi.
10. The Secretary, Indian Telecom. Service Association, Room No. 1203, Sanchar Bhavan, 20 Ashoka Road, New Delhi.

.....Rest has been agreed & am leaving as such!

Scientific Dept. Office
Rec'd 7/5/80

INTERNATIONAL MARITIME SATELLITE ORGANISATION.

***

21 March, 1980

Mr.T. Kora,
Min. of Communications,
Govt. of India,
Sanchar Bhavan,
New Delhi.

India

Dear Mr. Kora,

Further to my earlier letter sending vacancy notice No.'s 80/1-10, I now have pleasurein enclosing further vacancy notices forthe following posts:-

Vacancy Notice No.

80/11 Rapporteur, Administration & Finance Division.

80/16-21 Technical Staff (Communications) Technical & Operations Division.

80/22-23 Technical Staff (Operations Planning), Technical and Operations Division.

In accordance with the provisional Staff Regulations, the Notices are being sentto all Parties and Signatories and are being advertised outside the Organisation.

I would be grateful if you would kindly bring these Notices to the attention of any persons who may be interested.

2 copies of our personal history form are also enclosed. More copies will be sent if required but the form may be reproduced if you wish.

Sd/-
Olof Lundberg,
Director General.

INTERNATIONAL MARITIME SATELLITE ORGANISATION

VACANCY NO: 80/11.

POST:	Rapporteur, Administration & Finance Division.
DUTY STATION:	London, England.
GRADE AND SALARY RANGE:	P 3/P4. The range for the starting salary will be £ 9,342 to £ 17,000 free of tax. The actual grade and starting salary will depend on the qualifications and experience of the candidate selected and whether he or she is recruited locally or internationally.
NATURE OF APPOINTMENT:	Regular contract.
PROBATIONARY PERIOD	One Year.
PRINCIPAL DUTIES:	Under the supervision of the Conference and General Services Manager:

- to act as rapporteur at all meetings of the Assembly and Council of the Organisation and the Advisory Committees on Technical and Operational matters and on Finance and Market Planning, and at other meetings.

- drafting background papers and briefs for such meetings; attending meeting and taking written records of all deliberations and decisions; preparing draft summary records, reports and communiques; editing papers produced by the Directorate or participants; preparation of final reports and records after the meetings.

- acting as Secretary to the Council in place of the Conference & General Services Manager, and acting as Secretary to other meetings when required; providing information on rules of procedure.

- performing other functions relating to the servicing and conduct of meetings and undertaking conference or general service tasks of any other kind which may be required between meetings.

contd/---

MINIMUM QUALIFICATIONS & EXPERIENCE:

- Wide experience and proven ability in acting as rapporteur at meetings and conferences of an international organisation faimilarity with the conduct and servicing of international conferences.
- Faimilarity with national and intergovernmental activities in the field of telecommunications or the aerospace of electronics industries.
- Excellent commandof the English language.

COMMENCEMENT OF DUTIES: As soon as possible.

APPLICATIONS: Applications, addressed to the Director General should be made on INMARSAT Personal History forms, obtainable from the Inmarsat Dte., and should be sent under confidential cover to:

Director of Admn. & Finance Division,
INMARSAT,
Market Towers,
1, Nine Elms Lane,
LONDON - S.W. 8 £ N.Q

Closing Date: Applications should reach the Directorate by 15 May 1980.

.....

VACANCIES NO'S: 80/18-21 (3 to 4 Positions)

.....

POST: Technical Staff (Communications)
Technical & Operations Division.

DUTY STATION: London, England.

GRADE AND SALARY RANGE: P3/P5
The range for the starting salary will be £ 9,342 - £ 20,000 free of tax. The actual grade and starting salary will depend on the qualifications and experience of each candidate selected and whether he or she is recruited locally or internationally.

NATURE OF APPOINTMENT: Regular Contract.

PROBATIONARY PERIOD: One Year.

contd/-----

PRIMARY FUNCTION: INMARSAT is a new international organisation established for the purpose of improving maritime communications by the use of Satellites, and which will operate on a commercial basis.

3 or 4 Engineers are required with various combinations of skills relating to the principal duties set out below. Engineers with some of these skills are encouraged to apply. From these applications a selection will be made to assemble a small team having all required skills.

This team will have a broad range of responsibilities in the communications area and its members will have scope for initiative and innovation. The team will report directly to the Director of the Technical & Operations Division.

PRINCIPAL DUTIES:

a) Communications Link Analysis.

Analysis will be required to predict the link performance using practical values of performance parameters for all system elements, for each type of transmission offered.

b) Interference Analysis.

Calculation of the interference levels in the INMARSAT system caused by signals from adjacent satellite systems and interference levels in other systems caused by INMARSAT signals will be required both for the initial establishment of INMARSAT serviceand subsequently when any new communications satellite system requires orbit locations near INMARSAT in the three ocean regions.

c) Intersystem Coordination.

Coordination with other agencies on intersystem interference will be a key element in obtaining satisfactory maritime communications over the coverage areas of interest of INMARSAT Negotiating skills as well as knowledge of communications hardware design will play an important role in this effort

d) Earth Station Engineering.

The knowledge of earth station design and performance characteristics will be required for both Coast Earth Stations and Ship Earth Stations. An engineer with these skills will participate in developing specifications for earth station standards, acceptance creteria, system access controls, and system operation plans.

contd/---

e) Network Control Planning.

The planning of network control for the demand access features of the INMARSAT System will require abilities in communications and automated switching systems. Early preparation of specifications for equipments of this type is contemplated.

f) Space Segment Communications.

The knowledge of the design and performance characteristics of space segment communications equipment will be required as an input to space segment lease contract negotiations, intersystem coordination, operations planning and evaluation of systems performance. This knowledge must include fixed service as well as maritime communication systems.

MINIMUM QULIFICATIONS AND EXPERIENCE.

- University Degree or equivalent in one or more of the above areas ofcompetence.
- Five to ten years experience in several of the above areas.
- Excellent command of the English language.

ADDITIONAL DESIRABLE QULIFICATIONS:

- Post Graduate degree or equivalent research experience.
- Faimilarity with the telecommunications industry and satellite communications.

COMMENCE OF DUTIES:

- Positions 80/18 and 80/19 from June, 1980-
- Positions 80/20 and 80/21 from September, 1980.

APPLICATIONS:

Applications addressed to the Director General should be made on INMARSAT Personal History forms, obtainable from the INMARSAT Dte., and should be sent under confidential cover to:-

Director of Admn. & Finance Division,
INMARSAT,
Market Towers,
1, Nine Elms Lane,
London S.W. 8 5 N.Q.

CLOSING DATE:

Applications for positions 80/18 and 80/19 should reach the Dte. by 20th April, 1980 and for positions 80/20 and 80/21 by 30 June 1980.

contd/---

VACANCIES NO'S: 80/22 and 80/23 (1 or 2 positions)

....

POST: Technical Staff (Operations Planning) Technical & Operations Division.

DUTY STATION: London, England.

GRADE AND SALARY RANGE: P3/P5
The range for the starting salary will be £ 9,342 - 20,000 free of tax. The actual grade and starting salary will depend on the qualifications and experience of each candidate selected and whether he or she is recruited locally or internationally.

NATURE OF APPOINTMENT: Regular Contract.

PROBATIONARY PERIOD: One Year.

PRIMARY FUNCTION: INMARSAT is a new international organisation established for the purpose of improving maritime communications by the use of satellites, and which will operate on a commercial basis.

Officers filling these posts will be primarily responsible for planning of operations of INMARSAT's first operational systems. They will report directely to the Director of the Technical & Operations Division and will be part of a small team with scope for individual initiative and innovation.

PRINCIPAL DUTIES: Operations Planning.

to develop Planning forthe operational techniques necessary for a three ocean region maritime communications system will be required at an early date. The ability the overall system concept, define the various operating elements and plan the operational interconnects will be necessary to identify the total content of the INMARSAT system. Estimates of manpower for each element will be required. Evaluation of the alternative methods for operation, i.e. by using INMARSAT staff or contracting out will, be required.

contd/----

MINIMUM QUALIFICATIONS AND EXPERIENCE:	- University Degree or equivalentin the above areas of competence. - Five to ten years of experience in the operations of Satellite Communications systems and/or International Telecommunications networks. - Excellent command ofthe English language.
COMMENCEMENT OF DUTIES:	- Position 80/22 from June, 1980. - Position 80/23 from September, 1980.
APPLICATIONS	Applications, addressed to the Director General should be made on INMARSAT Personal History forms, obtainable from the INMARSAT Directorate, and should be sent under confidential cover to: Director of Administration & Finance Division, INMARSAT, Market Towers, 1, Nine Elms Lane, London.
CLOSING DATE:	Applications for position 80/22 should reach the Directorate by 20 April, 1980 and for position 80/23 by 30 June 1980.

....

SUMMARY OF CERTAIN CONDITIONS (IN ADDITION TO SALARY) APPLICABLE TO STAFF IN THE INMARSAT DIRECTORATE

Cost of Living Adjustment.

Consideration is being given to the possibility of adjustments to salary being made to take into account cost of living movements in the light of any changes in the United Kingdom retail price index.

Travel & related expenses

The costs of travel on appointment and separation for a staff member on a regular contract and his eligible dependents will be paid, together with the cost of removal of the staff member's personal and household effects.

Installation Grant

For staff members not already residing in or near London, a grant will be made at daily rates of UN per diems for 30 days after arrival plus one half of such rate for a spouse and one quarter for each child.

contd/----

Housing

A staff member who is not residing in or near London at the time of appointment may be given housing assistance, on certain conditions and subject to limits, for the purchase of accommodation, by way of a loan or subsidised interest. A rent allowance may also be paid to such a staff member for upto one year after commencement of duties or until purchase of accommodation, whichever, is earlier, though not whilst the installation grant is being paid.

Education Allowance.

For astaff member who is regarded as in international recruit an allowance of 75% of the costs of attendance of children at schools or universities will be paid under certain conditions, subject to a maximum reinbursement of £ 800 per child per year. Boarding costs are not reimbursable.

Health Insurance & Compensation for illness and accident attributable to service.

Arrangements may be made to offer all staff members the benefit of a private health insurance scheme (possibly on a contributory basis). Compensation will be paid for illness andaccident attributable to service at rates to be fixed.

Leave

- Annual leave

30 working days per year on full salary for staff in the professional and higher grades and 25 working days per year for other staff.

- Sick leave & maternity leave.

Sick leave and maternity leave will be given on full salary for periods to be prescribed.

- Home laeve

A staff member who is regarded as an international recruit will be entitled, once in every two years to visit, with his eligible dependents the place of his recognized home at the expense of INMARSAT.

Pension Fund

Staff members on Regular Contracts will become participants in INMARSAT's staff retirement pension fund involving contribution by the staff member of $6\frac{1}{2}$ per cent of his pensionable(gross) remuneration, with the Organisation contributing approximately 13 per cent.

Note: These conditions are provisional only and may be modifed prior to definitive adoption by the Organisation.

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(135)

There is an interesting paper sent by VS & me to ~~Chairman~~ SD. I had forgotten what exactly happened. Probably SD had a discussion with VS & me alone. Whether we asked for it, or he asked for it, I don't remember. Apparently we had made some plain speaking; ~~at~~ we felt later that we had hurt SD as it involves this style of working with Centres / Projects / HQ etc.

So we had decided to send a note — my draft corrected by VS was sent to him. (SD had kept it safe & returned to me with the bulk!) dated 1/5/1980.

Add p. 136, 137, 138

~~dash~~

STRICTLY CONFIDENTIAL 19800501

~~1/5/80~~ (136)

To: Prof. S. Dhawan

From: ~~D~~. V Siddhartha & Y S Rajan

Sub: Our recent meeting on overall management issues — the question of good conventions/practices etc

Chairman may pl. recall the recent meeting when both of us did some plain-talking, probably to the extent of irritating Chairman. We apologise, if we have hurt Chairman; it was never (nor will it be!) our intent to hurt Chairman personally, or the Chair (whether he be sitting on it or not!!).

We feel committed to 'ISRO' in a broad sense, and we have been observing the organisation, its growth, its problems and have also given some thoughts to make it better. Of course we realise that we have limitations of perception and experience. But we

(P-

believe that we have ~~far too~~ fewer "angles" and personal colouration — due to variety of historical and personal reasons — to, at least, pose issues and state the problems 'bluntly' as we perceive it. This is what we attempted to do the other day ~~since the topic was discussed~~ when Chairman dilated on the topic ~~raised~~.

We have strong reasons to believe that many of ISRO's management problems are, on the one hand, due to over-centralisation & poor management in following a laid-down policy, on the other. This is the result of incapacitated middle-management (the incapacitation partly being due to ~~incompetence~~ wrong people being placed at middle-management level in certain cases and partly due to lack of de facto delegation of managerial authority, as distinct from ~~against~~ delegated (administrative powers). The causative factors for this situation may not all be laid at the door of top-management but it has the responsibility to correct it all the same.

D.V.

 Owing (138)

~~We find that due~~ to variety of inhibitive factors and 'personal angles' in views as ~~Some cases~~ such ~~as~~ ~~feedback~~ ~~view~~ ~~and~~ will ~~never~~ unlikely to be projected so plainly by Centre Directors/Project Directors etc. ~~come straight-on face~~ to the Chairman.

So, are we correct in our assessment of ISRO management problems? This is a question that ~~will~~ we cannot, obviously answer but we may ~~bother~~ Chairman, since perhaps ~~we may~~ be the few lone ~~(strong?!)~~ voices (or noises!?) project these views. Having allowed us the privelage to speak ~~unin~~ we felt it was our duty to reveal our deep-felt assessment. ~~point out since we were in a position to state.~~ If we have hurt Chairman we ~~will~~ apologise. ~~and~~ In future we will be ~~more~~ less crude ~~circumspect in saying things, if it is felt that we are~~ rude (or crude?!) — even when we feel that such ~~talking~~ ~~wrong~~ circumlocution may result in some lack of clarity and miscommunication

Regards.

Add new 136, 137, 138 VSNC
Handwritten note refers to pre page

(139)

The way ISRO (more so ISRO HQ was functioning there were always some unplanned aberrations to the regular work almost daily. In today's (@2017) parlance, it may be called "BREAKING NEWS". Only a few of them really relate to activities on the ground or in some projects or some new opportunity. In the 1980's onwards internal conflicts within headquarters and "para politics" had increased many fold. Part of it was due to emergence of ISAC as an independent Centre having "control" over more number of projects — Rohini-1 satellite, Bhaskara and APPLE. URR had

had considerable role in INSAT as ~~well~~ well. In addition he had frequent access to Chairman due to ISAC being located at Bangalore. ~~He was~~ He also had an aggressive style to get things done. He would not mind ~~a~~ ~~bra~~ a brawler too!

Also SAC ~~is~~ in its search for ~~the~~ ~~Ap~~ a powerful role realised (partly prompted up by persons like PPK) that working only on development of applications would not get them ~~the~~ "visibility". The shine of launches may be stolen by VSSC and ISAC. That is the reason the fight to control SEQ-1 started. We have

~~Dad~~ written about it earlier.
They settled with "Application Payload"
So for APPLE with "Communication
Payload". In these fights JPS
was playing "jumping" roles. ~~Under~~
He would appear to fight the
case for SAC against ISAC (URR)
But for ~~A~~APPLE his main ~~Dad~~
goal was to get the "control
of it" as Communication Program Office
He would control everything related
to APPLE! He did not mind
SAC being left alone! RMV's
fight with URR to have APPLE
transfered to VSSC control
~~Dad~~ was quelled earlier. He felt

with ISAC (we have written about it earlier)

Very interestingly INSAT-1 (procured satellite) became an independent entity — not in the control of SAC or ISAC! It suited both PPK (to be a Head of ~~Dept~~) and JPS to have a direct control without YP & URR (~~two~~ senior persons) on the ~~way~~ way. As a ~~trophy~~ consolation prize YP was given the Chairmanship of INSAT-1 SSPO project Management Board. We had described about the conflicts in that JPS, PPK were on a daily fight mode. With URR during meetings

PPK & JPS were uncontrollable prima donnas. But PPK did not ~~to~~ do loose talks in corridors ~~of~~ about the fights inside or about ~~the~~ other projects/persons within ISRO. JPS was an unguided missile. He's "breaking news" almost every day ~~with~~ would depend upon what he thought was advantageous to him; ~~do~~ it did not matter if what he said, contradicts what he said even a week ago!

In addition to the above BP's departure ~~from at VS~~ did

have an impact on SD: he had lost a great advisor/implementor. Also whether SD would continue beyond Sept 1980 was also mildly speculated around. Who next? Some speculations between VRG, URR, S.C Gupta & N. Rau four H-level stalwarts and ~~other~~ above all YP who was the senior most at Addl. Secy level since 1972; but he had a mind to seek international fame by getting into UN and, of course, he can return on time if SD ~~gets~~ gets extension!

Naturally all of us in HQ specially were concerned about

it. Will he step down? Or ~~be~~ until further orders? How long etc. JPS also might have had such tensions. In those days his ambition was towards becoming a proper Joint Secretary to Govt of India with powers. His aim was in DOT or in Cab Sectt.. But nothing had gelled.

Within ISRO, or ISROHQ whatever SD might create ~~may~~ may not survive after his ~~exist~~ exit. ISRO Centres and ~~its~~ their tribal politics were getting clearer and stronger. VSSC was also of its own now in the open as the great ~~him~~ "unifying" force BP had gone away from the scene. Still success for the second attempt for SLV-3 E2 was a sort of unifying force. VRG gave the right ~~thing~~ leadership despite the fact he was also an elevator

tribal leader. Now VSSC pride that being the biggest and oldest ~~a~~ Centre, had nothing to show in a major way like Aryabhata launch of 1975 or even SITE experiment of 1975-1976 (though it was not very spectacular in the national scene ~~which~~ which it fetches Padma ~~awa~~ awards!), embarking of APPLE project, or INSAT-1 through with procured satellite. So that pride to show VSSC in a major way in the eyes of the nation was the common passion ~~of~~ that held VSSC together. SHAR had mostly served to "client centre" role for VSSC; there also ~~there~~ was

~~Thus~~ an understanding that ~~Sriharikota~~ SHAR ~~with~~ would get visibility through successful launches ~~of~~ of launch vehicles done by VSSC. So what SD used to tell me, after telling about the "para-politics" of personalities (without naming anybody, in a very polished way) and then add "Well Work Wells!"

So VSSC - SHAR was in a stable situation then working towards SLV-3E2 which was in an advanced situation by then.

Coming back to ISRO HQ much of ~~it~~ ~~was~~ it was the "fluff" created by INSAT-1 SSPO project

through lists of work for other activities were going on smoothly — including international cooperation with other countries which was picking up. JPS quickly pushed himself in ESA cooperation because he saw it to go big! He used the APPLE satellite (which he got into saying communication satellite) as the entry point!

That was also the peak time of ISRO HQ shaping as a think tank. It was not just for the Decade Profile but also for various disaggregated levels of space technology there were lots of

analytical reports done by ISRO HQ scientists; such as ~~technol~~ ~~technolo~~ techno-economic viability of ~~AP~~ Ammonium Perchlorate Experimental Plant (APEP) (by Chandra); similar analysis for SPROB by Sudarsanek.

Expl in APEP was introduced more to avoid Sales Tax complications though it was an in-house production unit. Though AP was available from ~~VIPRO~~ a match company

(WIMCO ??), it was a Swedish (?) one. (?) Possible denial someday was the worry. AP is crucial for solid propellant. So it was better to be self reliant. Getting from CECRI Karaikudi was only just a start. It was a lesson about CSIR technologies! It could not be scaled up; the anodes were eaten up like ~~mad~~ mad!

Sreenivasa Setty (who had

Come to ISRO HQ later, was Proj. Engr for APEP, under VRG's overall leadership. Finally he and his team solved the problem without any help from APEP.

So ISRO HQ had a good access to domain knowledge. Persons like P. Sudarsan (PS) and Chandra ~~the~~ ~~are~~ were having solid engineering background. Similarly KSP (Dr. Prabhu)

had solid computer background. He was of great help to all ISRO Centre personnel to size up computer requirements for short term & medium term futures and plan for procuring them. His solid knowledge was ~~acknowledged~~ acknowledged by all those in Centres. There was not a bit of adversarial relationship though KSP was tough in ~~the~~ terms of decision making. He was of great help in

preparing documents for Dept of Electronics approval (an oppressive dept in those days acting as an imperial controller of all computer activities in India). Even persons in DOE had an immense respect for KSP.

~~But~~ KSP had a cool temperament. He was ~~due~~ fully aware of the ~~p~~ micro-politics at ISRO HQ & the personal

and "tribal" politics of at the Centres. But he would not talk about them much, nor would he get involved. It was so with the ISRO HR politics!! JPS would find it very difficult!! As KSR would react to his "probes"!

KSP had a measure of SD's reactions as well. & When KSP used to send some specific

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notes ~~for~~ to SD for taking a decision or to enunciate a policy (~~the~~ KSP used to do it rarely!), he would see SD's notes. ~~Sometimes~~ He would show me SD's remarks and with ~~that~~ KSP's own ~~sense of~~ laugh-talk ~~that~~ would say "Old man has globalised the issue. He does not want to take a decision" and then put ~~a file~~ that paper in a file he ~~had~~ maintained!

(P.T.O)

It meant no further action!"
He was not troubling himself
like me to chase Chairman ISRO.
Similarly some papers from
ISRO HR or Centres or
even from Chairman ISRO he
had a sign O (ie
circular file! — it meant
the trash can which had
circular ~~o~~ input side!)

But his presence in
ISRO HR was not only
useful for computer ~~programme~~

related activities of ISRO both hardware & software but also to me personally as I could spend some time with him discussing a number of important issues. He may not respond to each item but I could see the signs from his face or from some moneyclubs. In some ways he was ~~like~~ B Somewhat like how BP was to SD.

KSP was also sound

on administrative matters
not just ~~the~~ on overall procedures
but also on details. He had
particular expertise on Personnel
matters....

PNJ was busy in ~~get~~ assisting
Venkatachary (KVV) in establishing
various elements of ISTRAC for
different projects. He was thus
busy travelling and going to SHAR.
He was more of an operational
person: Excellent in all details
of tracking, orbit determination etc.
No wonder he was able to get

into ESA later in the ~~M~~
Mars Mission Group and became
a project leader for Mars landing
mission of ESA.

SK Dutta was busy with
ISRO reports, which had picked
up momentum. There were good
contributions from the Centres as well.

P&PR Unit with VK Nair
was doing well as well. Indira
who came from ~~SK~~ YJ Rao
gave him lots of trouble ~~initially~~
initially.

Arifullah Admn. Asst

at ISRO HQ was a great asset.

So many to talk about including M. P. R. Panicker who took care of overall Administration, amid the ~~pre~~ crazy pressures given by TPS to assert his authority esp. to show that he was more powerful & within HQ more than Scientific Secretary ISRO....

Sreenivasa Setty was useful in linking up with VSSC.

Though VS was "Launch Vehicle person", due to BP's insistance ~~he~~ I was in SLV-3 Board. On direct operational matters in LV he was marginalised. PS was taking care of all ~~Pro~~ Propellant matters... Selby was taking care of many operational interfaces with VSSC. With VRC as Director VSSC, he was was also ~~comfo~~ comfortable that Selby was there... He was a great help to me....

It is in this context my note to Chairman ISRO about the circulation of the Programme offices for IRS & PSLV to ISRO HQ scientists. SD wanted to involve all HR scientists. Having been an experienced Director IISc and also Chairman ISRO for about 8 years now (@1980-..) he knew all the idiosyncracies. At the same time, he did not want to impose his final decision.

He wanted to go through consultations (or may be he ~~was~~ was aware that it ~~will~~ would be nothing of consultations!) I was caught in the midst of all these. I did not have the luxury of one "Programme" person! ~~thing~~ Sc. Secy ISRO was the donkey — as KSP jocularly described my role when the first order of Asst Sc. Secretary ISRO came. "Rajan: the abbreviation ASS

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describes the role!" It was so even after A was dropped!

I am attaching here with the note I wrote to SD with the enclosure of the brief record of discussion on 1 May 1980 with HQ scientists.

(165 – 173)

To change I80b note

Typed after 1 May 180

For: Chairman ISRO (165) /CONFIDENTIAL/

From: YSR DRAFT (165)

Chairman may recall my earlier note circulated within HQ after 1st May 1980 on the Organisation of "Programme Offices" for IRS & PSLV. This note was sent to JPS/KSP/PNJ/PS/SS and VS to obtain their comments.

~~In this connection~~ A meeting was held at HQ on 1st May 1980 on the subject. There were various ideas expressed during the meeting and some of it were on the very definition of 'Programmes'. I am enclosing herewith a brief record of views of various persons. On the whole it would appear that the exact constitution and definition of definition of programmes or projects or whatever other tems may be should be ~~xxxxx~~ best be done to suit the best needs of the activities which will in a few cases depends strongly on the persons who would be key to those activities. Chairman was considering having a meeting ~~xx~~ on this with some senior ISRO personnel and Centre Directors. Chairman may pl see for further action , if any.

YSR

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Brief record of some points that emerged during the meeting held on ~~1stxMayxxx1980~~ May 1, 1980 at ISRO HQ with HQ scientists.

J.P. Singh

- Programme Office is not a reflection of one-to-one activity of a Project at the Centres. To name IRS, PSLV, etc. is not correct. The correct one would be "Launcher Programme", "Remote Sensing Programme" etc.

- Discussions with agencies of outside ISRO and continuing dialogue with user agencies cannot be left ~~xx~~ with a single project.

- Solution on inter-Centre problems should not necessarily be ~~xxxx~~ that of Programme Offices: For example, Spacecraft Project Director should be empowered to resolve the inter-Centre conflicts, or any any conflicts that may arise in executing the task defined for the project. For such conflict resolution it is better the Project Director report to Chairman ISRO through Programme Director, or he ~~should~~ could report to Programme Director, if the Programme Director is senior enough. Centre Directors should not have a over-riding role on the Project Director, Spacecraft.

- The number of persons in the Programme Offices - example, STS etc - are only 3 or 4 and he had a feeling that the ~~xx~~ number should be only 3 or 4 .

For international affairs till source selection Programme only routine technical dialigue could be done .

- Programme Offices should have nothing to do with hardware procurement except for defining lead policy Centre and other general/matters. In turn-key projects once contract is finalised, Programme Offices should 'sit-back'and see.

- Conflicts between programmes are to be settled by Chairman ISRO/Secretary DOS and Space Commission.

- Authority of Programme Offices should be such th at he can have some direct administrative controls and be able to talk back to Centre Directors.

- If Programme Directors are not in sufficiently senior level, this can only be in staff role. Even in staff role some totality of information exist.

- Discipline oriented and programme oriented offices need not be contridiction, for example in FACC mechanical facilityx is handled by somebody ~~and so on~~ and meteorological satellite by somebody, ~~xx~~ and so on.

Sudarsan

He broadly ~~xxxxxxxxxxxxxx~~ agrees with JPS views. Differences are in the context of IRS - it should be satellite based remote sensing programme. In the case of launchers there is a problem since users are within ISRO. He felt that there could be Programme Offices for Meteorology, Remote Sensing and Communication.

That everything hinges on whether this should be ~~an~~ 'staff', or 'Executive', or on an unsatisfactory hybrid mode. He said that staff effort led to INSAT Programme Office. Further he felt that decision whether it is 'Staff, 'Exexcutive' or hybrid should be based on available talents. If there are talents, then can raise to Executive level.

He felt that line of authority will be clear if it is in non-Staff role.

He felt more application oriented, the discipline oriented structures are possible. Centres today are mor or less discipline oriented: For example, Electronics Division, Mechanical Facilities, and so on. For ISRO level it will be better to have partly disciplined oriented centre management and partly programme oriented central management.

If these are done with ~~xxxxxxx~~ idealised programme based structures with definite projects, and more and more activities being projectised, the question as to the role of Centre Directors ~~xxx~~ will come. They will be ~~xxx~~ merely providers of resources for ~~xxxxxxxxxxx~~ pre-defined activities. They would be more like Controllers of Centres.

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Setty

Two Programme Directors - one for IRS related activities and other one for PSLV related activities - would be good to have .

For Planning of activities 5 or 6 persons wil, feed to Programme Director. He felt that the staff role would be possible in the present juncture. He also felt that the Programme offices should concentrate on items in initiating some items which are not presently under projects, like PSLV and IRS which is not being done in the country like LOX system.

He felt that the Project Directors should not report to Programme Director since Programme Directors cannot be given Chairman ISRO's role.

The question of responsibility and accountability of schedules is an important thing. He said that the questions as to who will change the Project Director or a Project Engineer, etc should also be addressed.

KS Prabhu

He had doubts whether this new proposed system will work. He said that the present Centre structures are good enough to execute ISRO programmes provided the roles of Centres are better defined; especially between SAC and ISAC. He felt that this should be done by some orders from Chairman and also subsequent enforcing of these orders. Then he felt that

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the structures can take care of PSLV, IRS etc. Even if nothing is done, he was sure that PSLV will work since there is a good interface between VSSC and SHAR, whereas IRS may have some problem.

Jayaraman

He felt that partly discipline oriented and partly programme oriented structures with central management would be useful, such as Lauchers, Remote Sensing, Electronics, etc. But before deciding on this pattern it is important to ensure what is in our kitty. In other words, it is important to note whether talented and capable persons are available before conceiving of management patterns. In terms of all hardware development, he felt Project Directors should be responsible andfor decision making powers with respect to hardware development he can go to Programme Director for assistance if necessary. He also said that in such central management structure role of Centre Directors will be eroded and merely an administrator to provide resources would do at the Centre level. He felt in a way to define programmes would be certain series of related activities costing about certain quantity of money, but most importantly should depend upon the the availability of persons.

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Siddhartha

He tended to agree parts of Sudarsan and parts of Jayaraman's views.

He felt that we as an organisation are not in a position to define a/structure for next 10 years and therefore it will be best to conceive a structure for the coming 3-4 years responding to to some of the new tasks and based on the experience re-structure can be done for future.

He felt in this context that physiology is more important to Centre before anatomy is designed.

In other words choice of persons and the intercompatibility would be exceedingly important.

One crucial issue to be decided in such management board would be whether any one would have powers to adjudicate in disputes.

He also felt that one need not be conventional definition of programme and he defined any viable organism that can ensure execution of a series of related activities. He felt that in the present ISRO structure except for items involving conflicting resolutions, present ISRO HQ mode is quite satisfactory. Therefore when new structures are to be evolved, conflict resolution and powers of adjudication are to be stressed adequately and proper structure will emanate further.

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Rajan

He pointed out that with the definition of APPLE Programme which has been done around 1975 it was not defined at that time and as satellite project and related facilities It appears that Chairman's thinking of PSLV or IRS Programme emanates from such precedent with ISRO. Regarding user interaction it is not always possible to be fully handled by HQ alone especially ~~where~~ in connection with remote sensing would be very heavy. Handling communication or broadcasting, this involves a fairly heavy R&D mode even with the users .

Also the role of SAC vis-a-vis users is also an issue to be considered by Chairman. If all the interaction are left only to Programme Office, what will Application Centre do? He felt that there is no particular form in defining programmes in horizon of 5-6years around having which contain package of one or two projects and facilities. If this is the mechanism to be evolved an integrated exhibition plan . Ideal of course would be to define long-term programmes which will emanate from Programme Offices of ISRO. Even here there would be some problems of overlapping since some satellite would contain more than one mission, namely remote sensing, communication, meteorology and even other applications. Probably in view of very limited projects and activities in ISRO kitty, it will be better to have some hybrid form which will take into account some of the existing realities.

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The person who will be named as Directors or any other integrating role can be senior level persons or Centre Directors themselves then the matter of adjudication and conflicts gets simplified quite a deal, though of course one cannot rule out the possibility of conflicts within Centres themselves though with relatively junior persons may also become and certain conflicts could increase also.

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As I had indicated earlier, ~~was~~ inspite of all these consultations, inner conflicts of ISRO HQ was boiling over. Most of it due to JPS He was also pouring all his frustrations from INSAT-TSSPO Board into HQ. The level I was talking had reached very low level. Unable to stand it & also fearing possible impact on SD, I had sent a personal note (p. 175 - 181)

To Prof. Dhawan
for YSR
Hand over

Personal / Confidential

To: Prof. S. Dhawan (175) p175

From: Y S Rajan

I had mentioned to Chairman about a colleague talking of some "head rolling" etc of some top persons for their judgement on the selection of FACC despite his noting based on COMSAT comments etc. He was also mentioning about the enquiry from Delhi & so on... In his characteristic style he would say such things to others too.. Either this is a usual "tension mode" of working or deliberate "leakages of scares" aimed at some other individuals in ISRO/DOS ~~to~~ designed for the "political balancing acts".

The worry which I have, is that the system nowdays is being increasingly dominated by Prima donnas with scruples being pushed ~~aside~~ away. When such persons "fail" to reach their "political power" ends ~~ridden~~ in the internal in-fighting

(P.T.O)

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I won't be surprised if the fights are drawn by them to the "streets"; then we may have the situation of BARC etc.... A sorry finale to another Indian R&D organisation....

Also the INSAT scene is now ~~dddd engrossed~~ full of one-up-manship & temper tantrums of three prima donnas; one more is likely to be injected. The power play in the coming few months (especially) is not conducive to the technical progress of the project. From now to Dec 1980 are the crucial months to work/monitor technically the Project... I will leave it at that..

Another issue is the question of Programme Offices. The person is agitated over the designation of Programme Director, APS — probably because another such designation has cropped up in ISRO. May be it has "power equations" in his view of things. He tells in the open HQ meeting that Chairman told him

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that the implications of this name for APS was not pointed out to him (ie Chairman)... I have clarified the matter with Chairman and I don't intend to tell all ISRO HQ colleagues about it, though they may carry different impressions that Chairman might have after all been misled.. In the open meeting (I & Setty) could only say that Chairman chose the name & designation... Now the person also says that Chairman's office orders nowadays are very confusing, lack clarity, contradict earlier ~~orders~~ themes etc. "Chairman reacts to the last man who speaks" & so on.... Though I helped in drafting APS order, I did as per Chairman's instructions; people may question the decision but the Order is clear... If the person who says these feels that he is the only person consistent and good at drafting, he is free to hold his opinion

(P.T.O

but talking of these to others — I have reasons to believe that he may even tell so to <u>vulnerable Centre</u> persons — would be damaging to some ISRO HQ persons like me.

... The thread of such "fears & threats' are also in the note on Programme offices by the person to Chairman with a copy to me. He openly says in the meeting & later to me that Chairman is trying this Programme Directorships to accomodate some HQ persons with some positions before he leaves... He told me later that Chairman has told him ~~that~~ a month ago that he wants to find some position for HQ persons.... Well his concern could be to avoid emergence of other power Centres — Programme Directors with more executive powers.

... What I find interesting is the shift in the "definition" of terms these

persons give to various things. APPLE and its facilities — all tuned to a project — was a total Programme because he was handling it as the "focal point". I could even remember a row in ISRO HQ when Sudarsan 'processed' an overa for SPROB without his knowledge because it had some connection with APPLE!... Again INSAT as it is now is a Project oriented 'Programme'. How can the meteorological component of INSAT being 'overseen' as a "totality" of earth observation programme ... If anybody attempts it there will be a row!!... Also the tremendous difference of procurement task & in-house development is being underestimated.. Also 'user' in INSAT are outside & their plans are not overseen in detail. Elements of these were discussed briefly at HQ disussions in the usual "goody-goody" colleaguiry mode for obvious reasons.. I could only say that Programme office concept ~~is not~~ as given in my note is not necessarily

my view but my understanding of Chairman's views; I have only highlighted different ways of defining a Programme in ESA, NASA & industry & in ISRO. One need not follow any classical pattern necessarily as inputs to Chairman would be more than one. et.

Lastly I am very sad to note the "linguistic angle" being brought out in the note... I see in it dangers of the first salvo of street fights in ISRO. I have seen this person shouting at another ISRO Colleague once — in a fight that started from a joke — about Tamil talking & so on... The fact is that it is not Tamilians or South Indians who chose many persons in ISRO! It is sad even to talk of this.. Of course, one can always say; I don't think anything bad at all but 'others elsewhere' may not understand it; they will distort facts. Hence I

caution you. (An excellent thing in itself; but one can never be sure whether the Saya is using this advice itself as a threat or tool in "power politics"!)

..... I have said enough. As I mentioned to Chairman, I am very bad at things. After talking about ~~that~~ my application for INMARSAT, I have decided that I will not think of leaving the present tasks till one year. But immediately after that I have to ease out – to some remote corner. (I will need help, if possible.) ∴ I entered Science & Technology for work not for dirty politics! I don't offer any solution for the above situation — for a change!

Raja

8/5/80

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18b अन्तरिक्ष विभाग
DEPARTMENT OF SPACE

To: Chairman, ISRO

As desired by Chairman I have made a note; esp with Bhaskara TV-ON, I feel the IRS question can be clinched

Dr. Rangan — Overall 'programme'.

Dr. George Joseph — Proj. Dir.

Goel — Dy. Proj. Dir.

Anyway these are issues which chairman has to decide.

Raja
17/5/80.

(187) 187. For Chairman's use only

Sub : Certain qualities of Project Directors | Project Engineers

Amidst various action items on me Chairman had asked me to send a list of qualities of P.D's & P.E's for ISRO Development Projects (such as IRS, PSLV etc). His idea was to ask the Centre Directors for names within the constraints with some marking for each individual suggested by them. ≡ The following is an attempt at that. It may be noted that a Project Director should have a good general grasp of the System & the P.E. of the subsystem. Besides selection of individuals, the most important item is to ensure compatibility with others in the team including higher management and complementarity in some cases (e.g. Ramachandran is good complement of Vasagam — in ~~the~~ his knowledge of electronics, more decisive & so on.)

P.T.O

The qualities to be judged :-

1) Good general (engineering) grasp of the concerned | System | Subsystem (specify for each case)

2) Capabilities of man - management | leadership
   (a) Is he a loner?
   (b) Capable of high motivation of a team.
   (c) Too abrasive.

3) Decision making capability
   (a) Being systematic
   (b) Good hunches | horse sense
   (c) Too fast ... too slow

4) Capabilities in Problem identification/ prblem solution.

~~5) Perf Perform~~

5) Knowledge of Administration | Financial Procedures — Cost | schedule awareness

6) Performance under stress such as:
   (a) Role conflicts | confusion
   (b) Technical uncertainties

7) Honesty | Integrity.

8) General Psychology :

(a) Too ambitious

(b) Too meek

(c) Optimism | Pessimism | Cynicism

Given the above, how to judge a particular case for a Particular project. I think Chairman knows ISROs persons, programmes etc quite well & therefore he can make a set ~~of~~ on a priori threshold levels for each point & and for the overall grading. He could just ask the Centre Directors for a marking for the individuals suggested by them (all across ISRO) & send to Chairman.

Then the decision is simple (as simple as any such management decision can be!)

Roy

16/5/80.

As per my earlier experiences with SD, I did not expect him to talk to me: to calm me or to tell me that I was going overboard etc. But I did expect him to be aware of JPS's tantrums. It won't otherwise reach him JS/AS won't bother to tell except when it affects them. PS may say!

Anyway, as ISRO had to proceed, things were going on. SD had asked me

to give a note the qualities
of ~~Program~~ Proj Directors etc.
Though we discuss these matters,
SD believes in reducing them
to writing. He believes that
it adds to rigour. He ~~told~~
had told me as well.

I had written a note
with a covering slip. There is
a specific mention of Rangan
(KKR). He was capable. We
had special relations right
from May 1967. 1974
when I was in Mr Nair

with Aryabhata. I knew from PRL days, as he had joined PRL as a Research Scholar in 1963 one year before me. He, VS Iyenga & me worked for the first balloon expt.

On KKR - & my relations, I need to write separately. It was good & deep, till he changed totally after becoming Chairman ISRO — a great lesson for me about

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about psychology of para.

My note had not been coloured by any of liking & dislikes of paras. It was of course ~~data~~ based on the knowledge I had. I never discussed such items with any body in the Centres including Rangan

pl. 186 – 189

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~~Above~~ (190)

SD from time to time had been trying to evolve a more rational organisation structures for ISRO eg. bringing satellite technology together; applications together; ground systems together etc. But historical inheritance, personality conflicts etc came in the way. We had seen how difficult it was for satellites. Similarly ~~the to SP~~ it was not possible to place SPROB under Chemical ~~Re~~ one unifies

(P.T.O.)

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Best Regards,
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Project Manager

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management of RPP as Kurup & VKG were historical rivals! Later when Kurup became Director SHAR under which control was SPROB was, Kurup had to lose control on RPP. Geographic proximity played a role too & in organisational structures, as the units were not just technical items alone, but had personnel. Centre management had to be uniform in terms of how personnel were handled; how admin. infrastructure was shared etc.

On the other hand ~~to co~~ inter-centre coordination

for technical matters was not easy.

One important function of ISRO which suffered due to this was the Tracking Functions for satellites & launch vehicles. We had discussed about the birth pangs (creation) of ISTRAC: YJR, URR conflicts. For launch vehicles it was relatively easy in the beginning. Later when the ranges had to increase as was for PSLV, GSLV etc things would become more difficult.

For geosynchronous launch vehicles satellites it was

24×7 operations for several years.
In addition ~~from~~ from the launch
phase to Geo Transfer Orbit to
orbit raising maneuvers etc, functions
of ~~T/C &~~ L/V and Satellites
overlaps.

for remote sensing satellites
it was not only tracking,
(tele) Communication
Command and Control (functions
(TTC) but also receiving the
camera-sensed data, ~~and regularly~~
processing it and regular distributing
to users — for years.

Talking about:
In one sense it works

be better to have a unified command for these functions. In the initial stages of formation it would have been better to a leader who had ground system communication experience.

SD wanted to take advantage of this through the presence of ~~Pant~~ (Pant for short). Many in ISRO used to call him "Pant saab" — I also used that expression, we mostly used to talk in Hindi (Pant likes it!)

~~Pant's~~ Pant's taking over SHAR was an historical

accident. He was a guest No. 2
to K.R. Rao in Ahmedabad. With
~~YSR~~ ~~YSR~~ YP coming to Ah'd
in 1972 for a "unified" SAC,
there were in-house conflicts —
some "blood bath" too. We have
~~seen~~ written about it earlier.

Similarly inner SSTC conflicts
took away the career of YJR
the pioneer of JHAR. He had
agreed to function in an arrangement
of having ISTRAC as "Trisanku"
for ~~VI~~ Aryabhata, ~~HA~~ with
URR & YJR having control
on KVV. It was at a time

when BP was in full control of ISSP (Aryabhata) and SHAR projects. Even he could not fully control the dynamics of rivalry against YSR from SSTC (not URR) big wigs VRA, AEM & others pitching in.

So YSR gone, SSTC from SHAR, SSTC big wigs could not unify to put their man for SHAR — for example SC Gupta, or VP Kulkarni or somebody else, even Kurup or Easwardas. Probably

Thanks, noted.
Rajan
[Quoted text hidden]

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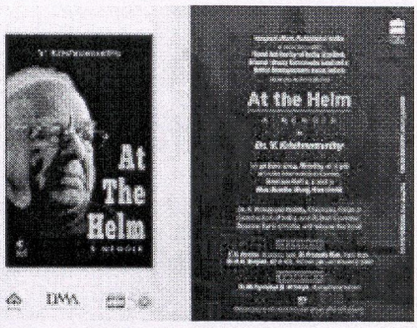
they thought that SHAR was meant to be a "slave-centre" for VSSC. Or could not unify to push for" their person" with BJP to push in SHAR.

It was that vacuum that was filled by YP to push "his man" to SHAR Dr. Paul — as he had Earth Station experience. For YP it was to increase his geographic-loyalty-presence. Then he could also expand his space in SAC to reward other loyalists. I remember how there were

mmmmm in VSSC. Pant
in his own quiet way settles.
Jayamani & ~~Majumdar~~ Mazumdar
had lots of freedom. SHAR
being full Centre, Pant became
ISRO Council member (a status
YSR did not enjoy — even
URR got it only after ISAC got
former)

One person from ISRO HQ,
whom Pant fully absorbed as his
assistant / adviser / special staff
ek was PNJ. It was openly
known. For all critical reviews in

(P.T.O



At the Helm.jpg
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in SHAR he would call PNJ well in advance. It was not limited to ISTRAC matters alone. PNJ was an old timer ~~in~~ to ISRO starting from TERLS days. He had excellent relations with many ISRO colleagues. Also professionally knowledgeable at professional level. Completely different type of genre than what ~~he~~ we had in HQ.

SD had given a task to Pant to bring up with plans or options for a unified system for ~~it~~ all of ISRO's ground systems

~~Current~~ then current and future systems. SD ~~etc.~~ envisages that it was brought under ISTRAC ~~then~~ which was then ~~a~~ under control of Director SHAR in the same Trishanku mode.

There would lots of interface with Satellite mission operations and post launch operations.

JPS would like to poke into this as he wanted his finger in INSAT-1 MCF (master control facility) which was to be established as a part of INSAT-1 SSP — as it