

C. S. O.

NAT/MET/1#18

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(Formerly)

SUBJECT :

FALKLAND ISLANDS DEPENDENCIES SURVEY

Stat ~~PROPOSED~~ FALKLAND ISLANDS METEOROLOGICAL SERVICE

CONNECTED FILES.

NUMBER AND YEAR.

0220 to 0269 inclusive

0860	United States Proposal for International Control of Antarctica
0861	Proposed Falkland Islands Meteorological Service.
0862	Tonil Antarctic

PS.

Make out a special file for this and "put by".
MC Dlx

REPORT ON THE PROPOSED

FAIRLAND ISLANDS METEOROLOGICAL SERVICE

METEOROLOGICAL OFFICE,

STANLEY

FAIRLAND ISLANDS

12TH JUNE 1948

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REPORT ON PROPOSED FALKLANDS METEOROLOGICAL SERVICE

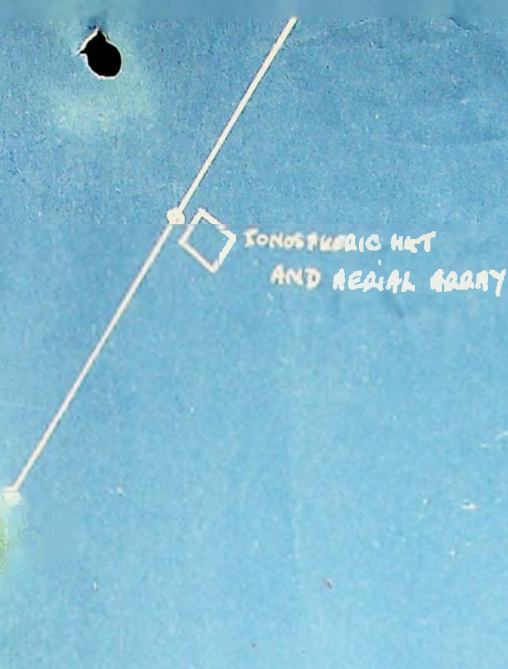
I INTRODUCTION

There has been little change in the existing organisation since the proposals in FLK 10/47/59 were put forward.

The above proposals followed the lines of those previously made by the Governor to the Secretary of State for Colonies in Secret Despatch No..... dated and were based on the assumption that the Meteorological service would continue to operate within the framework of the F.I.D.S. The Governor has it in mind, however, that a unique opportunity is presented for developing a Meteorological Service based in Stanley but stretching right ^{across} the Dependencies from South Georgia to Marguerite Bay which would be of first class value from both scientific (research) and practical point of view. He is on the one hand concerned for the whaling industry the taxation on which should he feels provide them with some specific service in return - this he thinks can best be met as above combined with hydrographic survey; he is concerned, on the other hand, that international opinion, which must be much exercised by recent events, should see reflected in our disputed claims to these areas, an intention to render service of long-term international value. It seems possible therefore that meteorological work will take a predominant part in future activities of the Survey which would at once not only eliminate all the difficulties of organising routine meteorological work to be carried out pari passu with other routine activities at the bases, but also greatly increase the potential scope of the meteorological service, since all bases would then be designed to operate essentially as meteorological observing and reporting units.

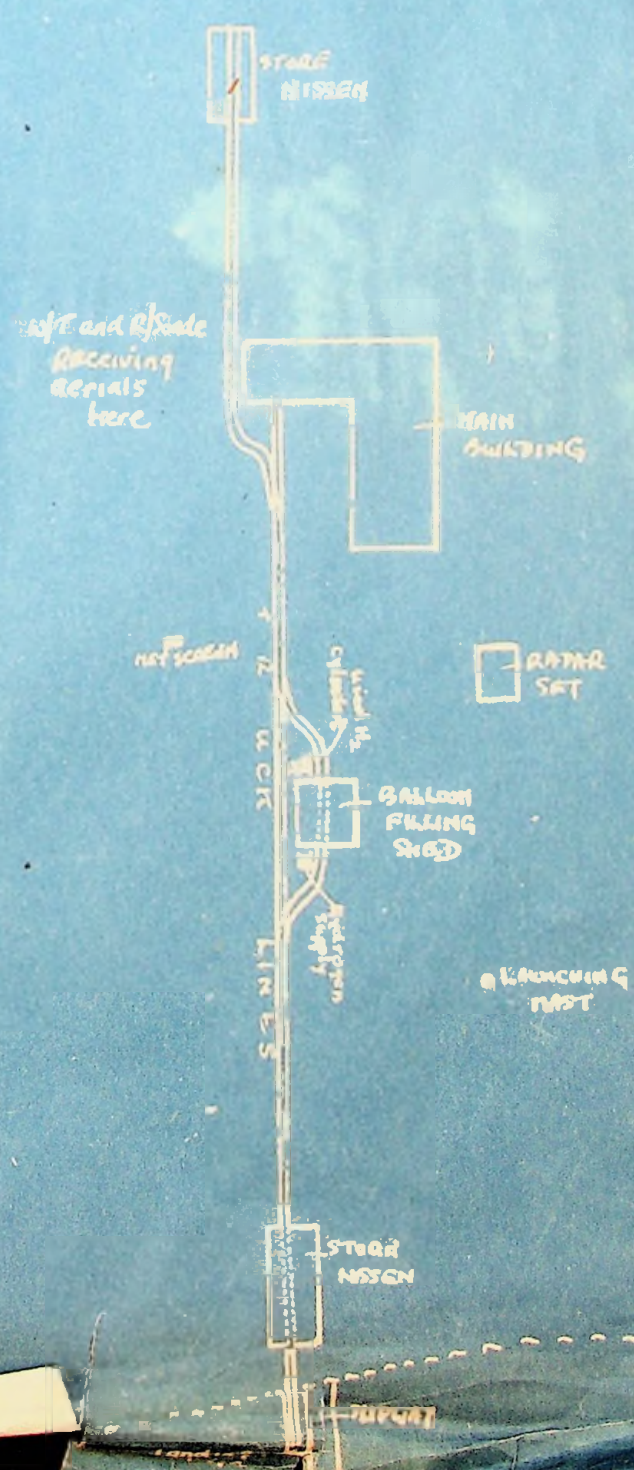
This report is therefore based on the assumption that meteorological work will take a predominance in the future work of the survey.

BLOCK PLAN PROPOSED STATION AT
DECEPTION I.



Scale - 20 yds to 1 inch

w/1 TRANSMISSION AERIALS
IN THIS SECTOR



II THE FUNCTIONS OF THE PROPOSED SERVICE.

These are largely unaltered :-

1. Taking of observations and distribution in the form of
 - (a) Synoptic Reports.
 - (b) Climatological Summaries.

It is proposed that all stations should take routine surface observations at as many of the synoptic hours (0, 3, 9 etc G.M.T.) as practicable, together with any subsidiary observations which may be required for forecasting purposes (2. a. b and c below). Pilot balloon ascents should be attempted whenever opportunities arise.

A second Upper Air station should be set up at Deception Island and routine combined R/Sonde and Radar Wind ascents should be made daily both from Deception and the existing station at Stanley.

All synoptic reports should be capable of interception in South America and South Africa as well as in Stanley. It is therefore proposed that surface and pilot balloon observations from the Dependencies (F.I.D.S.) stations should be collected together at Deception thereby avoiding the need for high powered transmitters at all stations. Deception would broadcast these reports together with its own Upper Air results, in an international collective message (FIDCOL), using a sufficiently high powered transmission to ensure reception by the meteorological authorities in South America, South Africa and Stanley.

South Georgia is already in possession of a powerful transmitter and would therefore continue to broadcast its reports independently of Deception Island. An attempt should also be made to collect reports from Husvik and Leith and the whale factories and catchers at sea and these reports would then be embodied in a collective issued with the Grytviken reports.

Outstations in the Falklands should report by telephone or by R/T to the Stanley Office. Reporting by W/T is not recommended since special reports are likely to be required at short notice whenever the aircraft is in operation around the islands.

Finally, all reports, including the Falklands outstations and the collectives from Deception and South Georgia would be broadcast in a collective message (FIDCOL) from Stanley.

These arrangements would give the best possible synoptic service which could be expected for forecasting both within the Falklands and in the foreign countries which are known to make use of reports from this area, e.g. South Africa, Brazil, Uruguay, Chile

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Argentina and Peru.

Monthly climatological returns would be made by all stations according to current Met.office practice. These original returns would eventually be sent to the climatological section of the Air Ministry and in addition, Daily Weather reports (see FLK 10/47/111 of 25th September, 1947) with monthly and annual supplements containing climatological data would be prepared in Stanley for distribution to all interested Meteorological Authorities.

2. Issue of Forecasts.

(a) To the general public in the Falklands.

Two forecasts based on the 1200z and 1800z synoptic messages are already issued daily by R/T Broadcast at 1200 and 1730 l. time. These are used primarily by the farmers and crews of schooners, cutters or other small boats operating round the coast.

The service might be improved by arranging for the issue of amended forecasts, gale warnings etc at specified intermediate times.

(b) For Aircraft in the Falklands.

As yet it is not possible to issue sufficiently accurate 12 hour forecasts for aircraft operation in the Falklands and a better service would undoubtedly be obtained by a system of short period forecasts issued immediately before flights and amended as necessary by R/T messages during flight.

All likely departure points would need to be capable of issuing brief meteorological reports to Stanley and adequate R/T links with Stanley would be imperative.

(c) For Ships - particularly Whale Factories and attendant catchers and aircraft.

Regular reporting from the whaling grounds would be a prerequisite to an efficient forecasting service. Unfortunately the whalers make a practice of keeping their positions secret while on the whaling grounds and it will be exceedingly difficult to persuade them to break this rule to help build a forecast service, without which they have operated successfully for many years and for which they are expected at first to show little enthusiasm.

The scheme is most likely to meet with success if forecasting officers could be carried at the shore whaling stations (and in sea-going factories also, if this is possible). The personal contact of these officers with the whaling managers and captains is most likely to win them over and to obtain cooperation in

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the making of weather reports.

Forecasts to the whaling fleets would then be issued by these dependent forecasters either on the shore station or in the whaling factories, using the analysis of current synoptic maps (C.A.C.'s) issued to them by W/T from the Stanley Office.

There should also be facilities for the issue of gale warnings both from Stanley and by the dependent forecasters both at the whaling stations and in the pelagic factories.

3. Investigation and Research.

The prime objectives of the service would be the immediate practical ones of observing and forecasting but special investigations would frequently be necessary if the efficiency of both observing and forecasting is to be continuously improved.

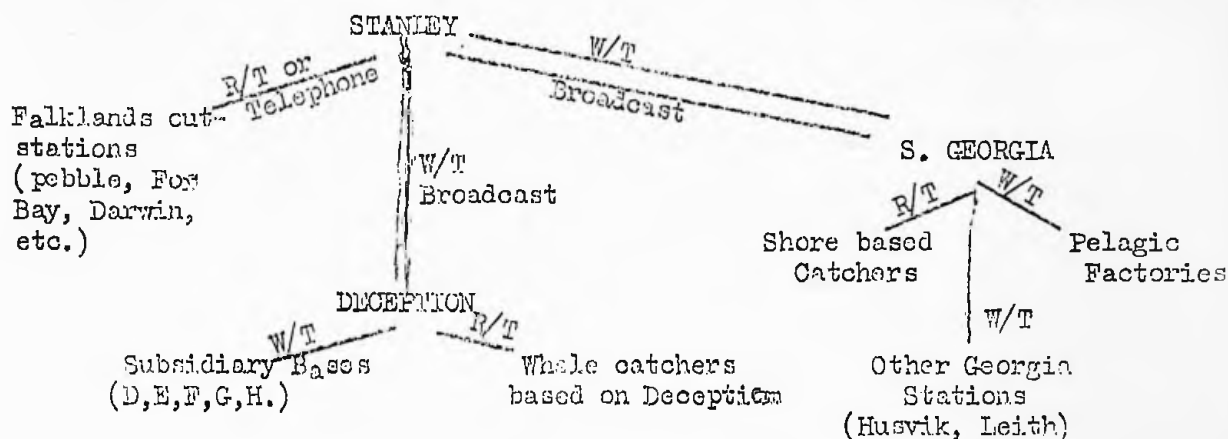
Such field investigations would inevitably lead to problems of pure research and the work would be referred to Air Ministry when it reaches this stage.

II THE PROPOSED SERVICE.

Stanley being the largest station and having the best communications with the outside world, is the natural centre for the organisation.

Two other key stations would also be required, one at Deception Island and the other at South Georgia. Both stations would carry forecasting officers and, would issue small broadcast collective messages. In addition, Deception would be an Upper Air Station, equipped with both Radar and R/Sonde.

The set-up is perhaps best illustrated as follows :-



It must be reiterated that the prime object of such a service would be coordination, by administration of the outstations and Dependencies stations from Stanley, but it is emphasised that a service entirely independent of the Meteorological Office, London, would be as undesirable as it is impracticable.

The Falklands will always be dependent on Air Ministry for R/Sonde and Radar equipment and for a majority of the trained staff required. In any event the service would be too small a unit for independent representation on international meteorological committees, which could only be effected through the Meteorological Office London.

It is now proposed to define the work of each type of station, giving an outline of the function of each and the organisation required. The subsidiary stations will be dealt with first and the central organisation at Stanley left to the last.

2. The F.I.D.S. Bases (excluding Deception Island).

It is the Governor's intention that Marguerite Bay, Argentine Island, Admiralty Bay, Signy Island and a site (not yet decided upon) off the east coast of Grahamland should become full synoptic reporting and climatological stations. No useful purpose would be served by maintaining the meteorological station at Port Lockroy since the exposure is poor and that of the nearby station on Argentine Island, which was opened in 1947 to replace Port Lockroy is much more satisfactory.

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Synoptic observations would be taken by all stations at 3 hourly intervals throughout the 24 hours and pilot balloons ascents should be carried out whenever opportunities occur. It is also desirable that the stations should be equipped with special recording apparatus, designed to work under the peculiar conditions obtaining in the Dependencies.

Synoptic reports for 12, 18 and midnight G.M.T. would be transmitted by W/T to the present station at Deception Island, as soon as the observations were completed. 0600z observations would normally be passed with the 1200z synoptics, because South American countries do not at the moment make use of 0600z observations and it would therefore not be necessary to issue them early.

Monthly climatological returns would be prepared on Air Ministry forms 3206 and 3207A for all observations (8 per day). These forms require an accurate account of the weather throughout the day (i.e. both between and at the 3 hourly synoptic hours) and it will therefore be necessary to keep continuous watches throughout the 24 hours at all stations.

Each station will require two trained meteorological observers, a wireless operator, who should also be given some training in the taking of meteorological observations, and one cook. The meteorological observers should preferably be recruited from Air Ministry staff or should spend some time at the Meteorological Office training school before appointment. The W/T operator should also attend this training school and both meteorological observers should be required to pick up a working knowledge of morse. The cook could be recruited in the Falklands while it should eventually be possible to recruit some of the W/T operators and meteorological assistants locally.

3. Deception Island.

(a) Observational Routines.

This would be the key station in the Antarctic Dependencies. Besides taking routine 3 hourly observations, it would be equipped with radar and R/Sonde and would make one combined ascent daily at 14z.

It is understood that the Director of Radio Research is interested in establishing an ionospheric measuring station in the Dependencies (probably at Deception) and the observational routine would therefore probably consist of surface and Upper air meteorological observations and Ionospheric observations.

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(b) Collective Messages.

Deception would be responsible for the collection of the synoptic reports from the smaller bases and their broadcast in the form of collective messages at 1215, 1815 (including Deception Upper Air data) and 0015 G.M.T.

(c) Forecasting.

If (as appears likely) shore-based whaling is reopened at Deception then the station will probably be called upon to issue forecasts to the catchers.

Stanley would issue routine combined analysis code messages (C.A.C.'s) at about 1530 and 2130 daily, to assist the forecaster at Deception who would pass a general appreciation of conditions in the vicinity of Deception by R/T to the catchers operating nearby. A transmission line for this purpose could probably be laid from the Factory transmitter to a microphone in the Meteorological Office.

(d) Climatological Returns.

In addition to forms 3206 and 7 there would be a number of monthly upper air returns to complete.

Staff

Meteorological Officer-in-charge (M.O.)

R/S Officer

2 Assistants (Observers)

1 W/T Operator- Mechanic	} Or Two W/T Operators one of whom has undergone a course in Diesel maintenance
1 Diesel Mechanic	

1 E.O. Ionospheric

1 Laboratory Assistant

1 Cook

The Meteorological Officer-in-Charge. would be generally responsible for all the stations in the Antarctic Dependencies and be responsible for the issue of routine forecasts to the whale catchers based in Deception.

The R/S Officer would be responsible for all Upper Air observations and it is desirable that he should be able to issue forecasts so as to give some relief to the officer-in-charge.

Meteorological Assistants. In addition to being trained observers the two assistants must be capable of following in the radar set, assisting in pre-flight preparations for combined ascents and helping with the computation of results. The average assistant is trained either as an observer or as a R/Sonde assistant but it is unusual to find assistant staff capable of both jobs.

Hence a good deal of extra training would be required and it is proposed that, if the scheme is approved before the end of 1948, two assistants should be entered locally and trained throughout 1949 at the Stanley Office. Besides ensuring the dual training, this arrangement will have the added advantage of bringing locally entered staff into the service in the early stages of its development and would also make it possible to interchange staff between Deception and Stanley (~~see FLK 10/48/~~ of).

The W/T Operator should also be a trained radio mechanic since he will be responsible for the maintenance of receiving sets and a powerful transmitter.

The Diesel Mechanic will be required to service and maintain two 15kw Lister Diesels which must provide a 24hour service for the ionospheric set, radar and radio equipment, in addition to lighting and perhaps heating the station. (It is known that Listers give a 6 week training course to mechanics who will be using their engines).

In the event of whaling recommencing from Deception, it seems probable that the W/T section would be called on to handle additional traffic. Hence, since diesels require little attention apart from routine maintenance, it might be preferable to replace the diesel mechanic by a second W/T operator who has attended a course in diesel maintenance.

Ionospheric Staff. It is presumed that the D.S.I.R. would provide their own staff for the Ionospheric work and Mr. Bailey agrees that a staff of one Experimental Officer in charge and one laboratory assistant would be adequate.

The Radio Sonde Officer will probably have had training in G.L.maintenance but it is desirable that the Ionospheric Experimental Officer should also be capable of doing the work in addition to assisting and advising on the maintenance and operation of all Electrical and Radio equipment on the base.

It is presumed that Deception, being the largest base, should carry a doctor, though this might not be necessary if the whaling station reopens.

The cook would be recruited in the Falklands.

Finally, all members of the staff must understand that they would be required to assist at need with any kind of work at the base (including household chores) and it would be the duty of the Meteorological Officer in charge to ensure that all aspects of the work including the Ionospheric programme, are adequately maintained.

The technical staff will all require skill of a high order.

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since numerous problems are bound to arise - particularly in connection with the upper air equipment.

4. South Georgia.

(a) Observational Routines

The station would make 3 hourly observations and pilot balloon ascents as in the case of the other Dependencies stations.

(b) Collective Messages.

The whale catchers operating from South Georgia (Grytviken, Leith and Husvik) and the pelagic factories operating within W/T range would be asked to cooperate by sending regular meteorological reports to the Government W/T Station. Reports from the shore-based catchers would probably be received on an extension from the whaling station's R/T system.

These reports, together with Grytviken's, would be broadcast in the form of a collective message at 0030, 1230 and 1830 G.M.T. Since there is also communication with Husvik and Leith from Grytviken, it might be possible to include in the collective reports from these stations.

(c) Forecasting

A forecasting officer would be carried at Grytviken for the whaling season only and would make use of the C.A.C. broadcasts from Stanley to issue R/T forecasts to the shore-based catchers and to any whaling factories in normal W/T communication with South Georgia.

(d) Climatological Returns.

Routine monthly returns would be made on forms 3206 and 3207 for every 3 hours.

Staff.

The Meteorological Officer-in-Charge (M.O.) would come out from the United Kingdom with the whaling fleet in November and return with it in March. He would be responsible for the initial organisation of the reporting service from the whale catchers and the maintenance of a forecasting service during the whaling season.

Three Observers would be essential to maintain the 24 hour service of observations during the winter and the extra duties connected with the plotting of synoptic maps etc, during the whaling season.

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The W/T communications with the factories, and the broadcasts of collective messages, would devolve on the Government W/T station and it might be necessary to add another operator to the staff for this purpose.

5. Falklands Outstations.

The reporting service within the Falklands would depend entirely on part-time observers who would normally make observations at 12z daily only but who could be expected to send in special reports whenever the air craft was in operation.

Stations are already in existence at Fox Bay, Pebble and Darwin and arrangements have been made to open another at Port Stephens. The station at Carcass Island has been closed owing to the indisposition of the only available observer and it has proved impossible to keep open the one on New Island due to communication difficulties. Suitable equipment has already been supplied to the three first-named stations but the Meteorological Officer from Stanley has not yet had an opportunity to visit them and the equipment has therefore not been installed.

Before the aircraft comes into use it will be necessary to open several more stations, preferably in the extreme West and South and it should be possible to contact all points, which are likely to be served by the aircraft, for last minute information regarding weather conditions, state of the landing field etc.

Reliable R/T or land-line links will therefore be necessary with all such points from the Meteorological Office and it is most important that the aircraft should carry R/T so that forecasts can be amended in flight if necessary. (Government proposes to instal R/T at all stations not at present in contact with Stanley.)

The stations carrying standard meteorological equipment and making regular daily observations would be asked to submit monthly climatological returns on Air Ministry forms.

6. The Stanley Office.

This would be the centre of the organisation and the officer-in charge would be responsible to the Governor for the general administration of the service as a whole.

(a) Observational Routines.

Three hourly observations are already taken

throughout the 24 hours but a considerable economy in staff is being effected by having the Cape Pembroke Lighthouse staff take 3 hourly observations throughout the night hours (0300, 0600, 0900 G.M.T.). The information is supplied to Stanley in the form of a weather diary of observations, making particular reference to the synoptic hours. Instrumental readings for the synoptic hours are then reduced from Stanley autographic records.

One combined Upper Air ascent (PRAWT) is made each day (excepting Sundays) at 1400 G.M.T. and consideration will be given to the introduction of routine ascents at 2000z when the staff become more proficient.

(b) Collective Messages.

Collective messages embracing reports from the Falklands outstations and the collectives issued by Deception and South Georgia, would be issued at 0015, 1315, 1915z daily. Reports from ships at sea in the area south of 40S and from 120W to 20W would be included when available.

(c) Forecasting.

i For the General Public.

Forecasts are already being issued at 1200 and 1730LT daily and are used primarily by the farmers and by the crews of small vessels operating round the coasts of the Falklands. This service would be improved by arranging fixed intermediate times e.g. at 9 a.m., 9 p.m. and midnight, when amendments to forecasts and gale warnings could be issued if necessary.

ii For Aircraft Operation in Falklands.

This would be served by a system of short range forecasts issued immediately before flights commenced and amended if necessary by R/T during flight.

iii Issue of C.A.C.'s.

Analysis of current synoptic maps would be issued at 1530 and 2130 to aid the other forecasters in Deception, South Georgia and pelagic whale factories.

If the forecasting services continue to develop, it would be necessary to issue other analyses at 0330 G.M.T. This would not be introduced until it became absolutely necessary since it will require ^{extra} ~~increased~~ forecasting ^{ers} assistants and W/T staff at Stanley, Deception and South Georgia.

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the forecasting done from the Stanley office, including the map analyses and general guidance issued to the subsidiary forecasters at South Georgia and Deception.

ii The Radio Sonde Officer :

would be responsible for the Radio Sonde Section in Stanley and would exercise a general supervisory control over the Upper Air work at Deception Island. In addition he would be required to take a share in forecasting and would be second in charge of the service as a whole.

iii Assistant Radio Sonde Officer :

must be capable of taking charge of the Radio Sonde Section including the supervision of combined ascents and the evaluation of results.

The cadet who was recruited in February of this year and who has been working mainly in the Radio Sonde Section is showing promise and consideration should eventually be given to the possibility of appointing him as Asst. R/Sonde Officer, thereby avoiding the difficulties of housing an officer from the United Kingdom and, at the same time, furthering the principle of introducing Falkland Islanders to responsible posts in the new service as soon as possible.

iv Four Assistants:

the extra amount of work involved in the supervision of the outstations and Dependencies climatological returns and the compilation of the Daily Weather Report with its monthly and annual supplements, will necessitate a fourth assistant on daytime routines. It is proposed that he should be recruited and trained in all aspects of the assistants' work - (e.g. observing, chart-plotting, climatological returns, radar following, pre-flight R/S preparations, etc.) - as in the case of the other three assistants. The senior assistants, Harvey and Newing would take it in turn to work daytime hours, during which they would undertake the climatological and other work and generally check and supervise the work of the two junior assistants.

v. A Full-Time Clerk :

the additional work of administering a developed service consisting of three forecasting and two upper air units, seven full and a number of subsidiary reporting stations, would require the services of a full-time clerk. The clerk's duties would be general office work such as typing, etc.

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and the responsibility for amendments to all publications issued by the Air Ministry, or by the Falklands service.

vi Air Ministry Adviser :

If the scheme is approved, it is strongly recommended that the Air Ministry should be asked to loan an experienced senior officer for a period of 12 months to act in a supervisory capacity and to inaugurate the new service.

The officer concerned should arrive in the Falklands not later than April, 1949 and could then organise the central administration in Stanley and the Falklands before making a visit to South Georgia in the spring of that year. The Dependencies stations could then be visited during the season 1949-50 and his work could finally be wound up in Stanley during March/April of 1950.

7. Communications.

(a) Four main communications channels would be required in and out of Stanley :-

- (a) To receive incoming collective messages from South American countries.
- (b) To collect reports from ships in the area.
- (c) To collect and distribute reports from all stations in the Falklands and Dependencies.
- (d) To issue forecasts, gale warnings, C.A.C.'s etc.

(e) Collective Synoptics are always broadcast at specified times and on fixed frequencies; hence direct communication with the transmitting station is not required.

The schedules are so arranged that very few transmissions coincide or overlap and all are broadcast as soon as possible after the hour of observation. (See W/T appendix).

Hence, apart from the short Uruguayan Collective from station CWA, it would be possible for one operator to receive all the incoming messages required for any synoptic map. Thus, all South American collectives of 1200 G.M.T. observations which are of interest in the Falklands fall between 1300 and 1530, 1800 G.M.T. observations between 1900 and 2130 and midnight observations between 0100 and 0230.

(b) Land stations reports from South America cover only a very small part of the area from which reports are required and ships' reports would therefore be of considerable value. Arrangements should be made for all ships in the area South of

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40 degrees South and between 120 West and 20 West to pass reports for main synoptic hours to Stanley.

(c) The periods 1200 to 1300, ~~1315 to 1330~~, 1800 to 1900 1915 to 1930, 0000 to 0100, 0115 to 0130 are at present not taken up by synoptic messages from any of the countries Brazil, Argentina, Chile or Uruguay. Hence the Falklands and Dependencies reports could be collected within the hour following each observation, and the collective messages could be issued during the subsequent free quarter hour. Routines would then not clash with those of other countries, and synoptic data from this area would be broadcast with the minimum of delay after the times of observation. The final collective messages would be issued from Stanley but, in order to avoid the need for high-powered transmitters at all the Dependencies bases, it is proposed that Deception should collect the reports from the other bases and retransmit them along with her own reports and any others available from catchers, in the form of a collective message designed to be received in South America, South Africa and Stanley. Deception would require a transmitter with an output of the order of a kilowatt and broadcasts should be made using either special day and night frequencies or dual transmissions using at least two frequencies simultaneously.

(c) The issue of forecasts, gale warnings, and map analyses. Local forecasts for use in the Falklands will always be issued over the Stanley R/T broadcast transmitter, using a relay line and microphone in the Meteorological Office.

Forecasts to the aircraft and all routines concerned with the collection of subsidiary station reports, would be carried out by the R/T communications set up in connection with the aircrafts operation. This would be most conveniently located at or very close to the Meteorological Office in order that the Meteorological Staff would be readily available for consultation. The existence of an R/T point well within sight of the aerodrome has obvious advantages from the operational point of view. Gale warnings for sea areas would be issued by the Government W/T station on the 500 kcs. ships' international distress wave. They would be broadcast immediately after issue and repeated at 2 or 4-hourly intervals (except during the period 0300 to 0800 when the W/T station would be closed down) until the issue of a further signal cancelling the warning or replacing it by a new one.

Map analyses would be broadcast from the remote W/T control at the Meteorological Office, to Deception and South Georgia, at 1530, 2130 and 0330 G.M.T., and receipt would be acknowledged by both stations.

Efficient W/T communications are vital to the entire service since all meteorological messages lose considerable value unless they can be issued and received at once. Undue delay and unnecessary work involved in phoning messages can be avoided if the Stanley Meteorological Office is equipped with a small remote control unit which would need to be manned by a Government W/T operator during the hours 1200-1600 G.M.T., 1800-2200 G.M.T. and 0000-0300 G.M.T. A single operator at these hours would be able to receive all incoming reports from the Falklands Dependencies and South America (excepting only the short CWA collectives at 1400-1410, and midnight to 0010), and to transmit all outgoing Meteorological broadcasts, including the CAC map analyses and the FICOL collectives. Hence the only work devolving on the operators at the main W/T station would be the issue of gale warnings and the receipt of the CWA collectives (though the latter might eventually be taken by Meteorological Office staff).

It is impossible to lay down any definite schedules for Deception since much would depend on the arrangements for the issue of forecasts to the whale catchers and whether the W/T section would be called on to operate a communications service for the Whaling station. (A scheme which might produce considerable revenue, but which might call for an additional W/T operator at least for the duration of the whaling season). However it would be essential to collect the synoptics from the subsidiary bases and broadcast the collectives at the times laid down in the W/T appendix. It would also be necessary to receive CAC messages from Stanley, to assist the Met. Officer in issuing forecasts.

There would be few requirements from the subsidiary bases.

South Georgia W/T station would be required to operate a similar routine to Deception - i.e. to collect reports from whale factories, catchers and the other shore bases and to issue the collective messages at the times laid down. The forecasting officer would also require CAC messages from Stanley during the Whaling season.

COSTS OF THE PROPOSED SERVICE AND FINANCIAL ARRANGEMENTS

GENERALLY

The foreseeable annual running costs of the various sections, excluding equipment, are indicated below :-

STANLEY

(a) Salaries

Meteorological Officer - in - Charge	£600
R/Sonde Officer (and 2nd in Charge)	550
Assistant Radio Sonde Officer	200 - 400
Four Assistants at	100 - 300 ea
One Clerk	100 - 300
Office Cleaning	<u>25 - 50</u>
	<u>£ 1875 - 3100</u>

(b) Running Costs

(Postage, Lighting, Telegrams, Diesel Fuel, etc., etc.,) - £400

(c) W/T Communications.

Reception of Collectives from Deception	£150 - 250
Reception of Collectives from South Georgia	30 - 100
Transmission of FICOLS	<u>150 - 350</u>
	<u>£330 - 700</u>

TOTAL COSTS OF STANLEY STATION £2600 - 420

DECEPTION ISLAND

(a) Salaries :

Met. Officer - in - Charge	£550
Radio Sonde Officer	£500
Two Assistants	£250 - 300
W/T Operator - Mechanic	£300 - 400
Diesel Mechanic	£300 - 400

Also One Experimental Officer (£500) and one Laboratory Assistant (250 - 300) - both Radio Research Section responsibility)

Total Salaries - £2150 - 2550

(b) Running Costs :

Victualling	£900
Diesel and other fuels	£1000
Replacements instruments etc.	<u>£100</u>
	<u>£ 2000</u>

TOTAL COST OF STATION AT DECEPTION £4150 - 4550

FIVE OTHER DEPENDENCIES BASES(a) Salaries (per base)

Observer(in Charge)	£300 - 350
Second Observer	£250 - 300
W/T Operator	£250 - 300
Cook	£200 - 250

TOTAL SALARIES FOR ONE BASE £950 - 1150

(b) Running Costs (per base)

Victualling	£400
Petrol and other Fuels	£100
Replacement of Instruments etc.	£50

TOTAL RUNNING COSTS PER BASE £550

THEREFORE TOTAL COSTS OF FIVE STATIONS £7500 - 8500

SOUTH GEORGIA(a) Staff

Forecaster (£500 p.a. for whaling season only) £250

Three Observers £250 - 300

(plus £50 for observer in charge during winter)

TOTAL SALARIES £1050 - 1200

(b) Running Costs.

Victuelling	£250
Petrol and other Fuels	£100
Instrument Replacements (including equipment on whale catchers)	£200
TOTAL RUNNING COSTS	<u>£550</u>

(c) Communications

Collection of W/T reports from factories, Husvik and Leith £50

Broadcast of Collective Messages £200

COST FOR COMMUNICATIONS £250

TOTAL COST FOR SOUTH GEORGIA £1850 - £2000

THEREFORE, TOTAL ANNUAL COST OF SERVICE,

EXCLUDING EQUIPMENT - £16000 - £19000.

It is impossible to make an accurate estimate of the cost of equipment but that for the two Upper Air Stations making routine daily ascents, would very probably amount to several thousands of pounds. 22

II Setting Up Costs.

The two major items would be the cost of the new buildings required at Deception and South Georgia, and the cost of the Upper Air Apparatus for Deception.

It is certain that the station at Deception, which would need to house eight men and contain a meteorological office, upper air section, ionospheric section and radio room, would cost several thousands of pounds. It is impossible at this stage to make even a rough estimate for South Georgia - much would depend on whether married staff were to be carried at the station and whether staff could be housed within the meteorological office as on the other Dependencies bases or given separate accommodation.

No information is available in Stanley regarding the cost of Radar and Radio Sonda equipment.

III Allocation of Costs.

The total burden would presumably be shared between Air Ministry The Falkland Islands Dependencies and (to a very small extent) the Falklands Central Administration.

All meteorological equipment must come from Air Ministry and it is suggested that Air Ministry be asked whether they could undertake, as their share of the costs, the supply and maintenance of all items of meteorological equipment, including both the initial and seasonal equipment.

It will be apparent that the Falklands Central Administration could bear no more than a small share of the costs and it is proposed that they should contribute a sum comparable with the costs of issuing local forecasts in the Falklands. This might be fixed as the salaries of two assistants at the Stanley Office and the honoraria of the camp observers, which together would amount to £500 - 700 annually.

It is presumed that the R/T communications, which would be essential for aircraft operation apart altogether from meteorological requirements, would be provided in any event and would be made available to the meteorological service without charge. All other costs both initial and recurrent would fall upon the Falkland Islands Dependencies votes. The initial costs would

include the transportation of the new stores and apparatus and the erection of the two new stations at South Georgia and Deception; the annual costs would include all costs connected with the "John Biscoe" and the transportation of supplies generally, as well as those detailed under para I above and amounting to between £16000 and £18000.

GENERAL CONCLUSIONS AND SUGGESTED COURSES OF ACTION

1. It will be apparent that the plan could not go through without the full support of Air Ministry, upon whom the service would be dependent for the majority of the more highly trained staff, the free supply of all meteorological equipment and for general advice and supervision both during the setting up process and subsequently.

There is already an acute shortage of trained staff in the Meteorological Office and it is likely to prove impossible to recruit personnel unless Air Ministry are given ample warning.

There will be problems connected with the operation of the Upper Air equipment under Antarctic conditions and as many of these as possible should be investigated before the Upper Air unit is set up at Deception. The transportation of the Radar set will be a problem in itself and special arrangements will need to be made for the landing of the equipment. It seems likely that similar problems were met and solved by the R.E.M.E. units responsible for landing such equipment on invasion beaches. (it is known, for example, that the G.L. Set can be waterproofed to a depth of several feet). United Whalers would no doubt be able to undertake both the transportation and landing of the set if and when they re-open the whaling station at Deception. Another source of trouble is likely to be the **collection of** condensed moisture ⁱⁿ on the radar set after each ascent; this difficulty might be countered by fitting a suitable desiccating pad to the intake of the ventilating system.

2. The New Station at Deception.

A completely new station would be required at Deception and the buildings would all need to be completed the season before the Upper Air equipment is supplied to the base. The relative dispositions of the various work rooms and offices are predetermined by a number of factors which will allow little latitude in the design of the new building. For example, it is particularly important that the ionospheric aerial array and W/T transmission masts should not obstruct the R/Sonde release ground.

Sketch plans have been included in the appendix to illustrate the arrangement required.

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3. The New Station at South Georgia.

As stated earlier, the type of building would depend on whether married observers were to be allowed on the station. This would obviously be desirable and there are precedents, since married quarters are available for almost all the Government officers in Grytviken. The forecasting officer, who would be on the station during the whaling season only, would not require married quarters. No doubt the Compania Argentina De Pesca would be prepared to assist in erecting the necessary buildings.

4. Co-operation of the Whaling Fleet.

The importance of winning the confidence and co-operation of the whaling fleets in making meteorological reports (and to a less important degree in assisting to erect new stations) has already been emphasised. In particular, it would be virtually impossible to operate forecasting services from South Georgia and Deception without such co-operation, apart from the futility of supplying this information if the Companies do not intend to make use of it. It should, however, be borne in mind that the reorganisation of the service as a whole is not dependent entirely on the operation of the two forecasting units in the Dependencies, desirable though these may be, and it would be possible to proceed at once with the other recommendations, leaving the forecasting units until a more favourable opportunity arises.

5. Recruitment of Assistant Staff

The proposed local recruitment and training of two assistants for Deception need not await a decision regarding the new scheme as a whole, because two trained meteorological assistants could be conveniently absorbed into the existing F.I.D.S. organisation, should the proposed plans be rejected.

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APPENDIX No.1 - W/T SCHEDULES.

(a) STANLEY.

Almost all the routines would be dealt with by Government W/T operators working at the remote control station in the Meteorological Office. Watches would be as follows :-

i 1200 to 1600 G.M.T.

1200 - 1230 Ship Reports - IN
1230 - 1245 FIDCOL from Deception - IN
1245 - 1300 Collective from South Georgia - IN
1300 - 1305 LOX Collective - IN
~~1300~~ - ~~1305~~ LOY Collective - IN
OUT - 1315 - 1330 FICOL - OUT
1330 - 1345 CCS Collective - IN
1400 - 1425 LQV Collective - IN
1500 - 1525 LQV Collective - IN
OUT - 1530 - 1600 CAC Messages and Forecasts to Ships -OUT

ii 1800 - 2200 G.M.T.

1800 - 1830 Ship Reports - IN
1830 - 1845 FIDCOL from Deception - IN
1845 - 1900 Collective from South Georgia - IN
1900 - 1905 LOX Collective - IN
1910 - 1915 LOY Collective - IN
OUT - 1915 - 1930 FICOL - OUT
1940 - 2000 LQV Collective - IN
2000 - 2015 CCS Collective - IN
OUT - 2130 - 2200 CAC Messages and Forecasts to Ships - OUT

iii 0000 to 0030 G.M.T.

0000 - 0030 Ship reports - IN
0030 - 0045 FIDCOL from Deception - IN
0045 - 0100 Collective from South Georgia - IN
0100 - 0110 CWA Collective - IN
0110 - 0115 LOY Collective - IN
OUT - 0115 - 0130 FICOL Collective - OUT
0130 - 0145 CCS Collective - IN
0200 - 0225 LQV Collective - IN

(b) Deception Island

- i 1200 - 1245 G.M.T.
 1200 - 1230 Collection of subsidiary bases synoptics
 1230 - 1245 Broadcast of FIDCOL Collective.
 (1245 - on, other traffic worked with main Stanley
 W/T Station?)
- ii 1530 - 1600 G.M.T.
 1530 - 1600 Reception of CAC's and forecasts from
 Stanley.
- iii 1800 - 1845 G.M.T.
 1800 - 1830 Collection of subsidiary bases synoptics
 1830 - 1845 Broadcast of FIDCOL Collective
 (1845 - On, other traffic worked with main Stanley
 W/T Station)
- iv 2130 - 2200 G.M.T.
 2130 - 2200 G.M.T. Reception of CAC's and forecasts
 from Stanley.
- v 0000 - 0045 G.M.T.
 0000 - 0030 Collection of subsidiary bases synoptics.
 0030 - 0045 Broadcast of FIDCOL Collective.
 (0045 - On, other traffic worked with main Stanley
 W/T station?)

(c) South Georgia.

- i 1200 - 1300 G.M.T.
 1200 - 1245 Collection of reports from catchers,
 whale factories and other shore stat-
 ions in South Georgia.
 1245 - 1300 Broadcast of South Georgia Collective.
- ii 1530 - 1600 G.M.T.
 1530 - 1600 Reception of CAC's and Forecasts from
 Stanley.
- iii 1800 - 1900 G.M.T.
 1800 - 1845 Collection of reports from catchers,
 whale factories and shore bases in South
 Georgia.
 1845 - 1900 Broadcast of South Georgia Collective.

iv 2130 - 2200 G.M.T.

2130 - 2200 Reception of CAC's and Forecasts from Stanley.

v 0000 - 0100 G.M.T.

0000 - 0045 Collection of reports from catchers, whale factories and shore stations in South Georgia.

0045 - 0100 Broadcast of South Georgia Collective.

It is understood that R/T routines will be maintained twice daily with a number of camp stations, as part of the air ambulance service and it should be possible to arrange for the camp reporting stations to pass their 1200 G.M.T. synoptics in the morning routines, with additional reports for local forecasting purposes, in the afternoon routines.

The current practice whereby the forecaster himself issues the forecasts over the R/T broadcast, will be continued.

Hence the only extra routines thrown on the main W/T station would be the reception of the short CWA collective message at 1300 - 1310 G.M.T. and the broadcast of gale warnings for ships when applicable. However, it would be necessary to have an operator in attendance at the main station to cover the periods 12 - 1230, 18 - 1830 and 0115 - 0130 G.M.T., which fall outside the present routines.

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APPENDIX No.2 - LIST OF STAFF REQUIRED AT ALL STATIONS.

STANLEY

Met. Officer in Charge,
Radio Sonde Officer.
Assistant Radio Sonde Officer.
Four Assistants.
One Full-Time Clerk.
(Part-time Office Cleaning).

Present Complement.
Met. Officer.
Radio Sonde Officer.
Cadet.
Three Assistants.
Part-time services of
a clerk.
(Part -time office
Clenning)

DECEPTION ISLAND

Met. Officer in Charge.
Radio Sonde Officer
Two Assistants.
Wireless Operator - Mechanic.
Diesel Mechanic
Cook

Officer in Charge Ionospheric Equipment } Not Falkland Islands
Laboratory Assistant } responsibility.

(additional W/T operator if station handles whaling traffic)

SOUTH GEORGIA

Met. Officer (forecasting) - for whaling season only.
~~Two~~ Assistants.

SUBSIDIARY STATIONS

First Assistant (Observer) - in Charge.
Second Assistant.
W/T Operator.
Cook

a APPENDIX No.3.

Sketch Plans for the New Station at Deception

I The Main Station-Building.

It is assumed that, since the proposed service would be a permanent one, more attention must be paid to the comfort of the staff than hitherto. The living quarters shown on the plan are still quite small and comprise only about one third of the total space in the building. However, attention to the following details of fittings and furnishings would make the accommodation adequate and pleasant.

(a) Central heating system. This would add greatly to the comfort of the entire building and could probably be run from the electrical diesel generators assisted by a regeneration system from the diesel exhausts.

A coal fire should, however, be supplied in addition in the mess room.

(b) Warm water supply. It is conceivable that the hot springs could be piped to the house and redistilled in a small plant worked by the same regeneration system which would power the central heating apparatus.

Alternatively, it should be possible to distil sea water, which could be drawn from those areas of the beach which are normally ice-free throughout the year.

(a) Electric Light.

The ionospheric equipment will require a 24-hour power supply and electric light could therefore be provided in all rooms.

Hence, apart from a small coal fire, all heating, lighting and power will be provided from one source - diesel fuel. The advantages of this system are obvious.

(d) Separate bedrooms should be provided for all staff, so that the night watchman can sleep undisturbed during the day and each man will have a private compartment of his own, however small it may be. The rooms shown are only five feet by eight feet, but they could be made comfortable by installing built-in bunks with large drawers beneath, a small wardrobe at the foot of the bunk and a table by the window, fitted with a reading lamp.

(e) The messroom would be used for meals and as a communal room generally. It should have a library and comfortable chairs for everyone.

II BLOCK PLAN SHOWING THE DISPOSITIONS OF THE BUILDINGS AND OUTHOUSES

It is particularly important that the aerial system should lie to the North West of the main building and the Balloon launchingground, with the radar set, should lie to the South East. The two outlying storage nissens are suggested primarily as a precaution against fire, in the event of which there would be alternative stores and shelter available.

The provision of a small slipway and landing stage would facilitate the landing of stores and, with a small truck line from landing stage to storage Nissen, it would be possible to avoid undue exposure of Radio Sonde and other fragile stores to the weather.

APPENDIX No. 4.

Survey by R.A.F. Photographic Reconnaissance Unit.

It will be apparent that neither the proposed meteorological service nor the existing F.I.D S. organisation could adequately supply the meteorological requirements of an intensive flying programme such as the P.R.U. would undertake and the unit would therefore need to carry its own forecasting officer.

Met.

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Future of Met. Offices.

(1946 decision +
basis about some then of
A.M.

(2) Future of Observations

Deception :

Collection report
& 3 times 12-18.00
Ionospheric $\frac{1}{2}$
Geo. magnetic

Signy

Admiralty Bay

E or (F)

X S. Georgia.

Stanley

Instructions — standardisation of

sets; incidents through Met. Serv.

Recurrent strong : Through H.O.
channels.

Annual Symposium :

S/F

To be filed with.

Md. Service papers for

the 16th

We must take early
action on recruits for
next year.

H
Top Secret.

Open new file please

546
63 in
0227
(Political)

reference to Egan's
record in June of this
year indicating that some
sort of readjustment was
contemplated.

ENC 16
Ki

S/F.

K.I.V. additional
body for seal count
in S. Georgia and
Met. Observer/s there.

mc. 19/xi

There is correspondence

with the United States

to send in for, named

() leave call

file.