

AD-A036 514

NAVY UNDERWATER SOUND LAB NEW LONDON CONN
SCATTERING LAYER OBSERVATIONS MADE DURING PROJECT EARS CRUISE I--ETC(U)
SEP 67 D A HULL

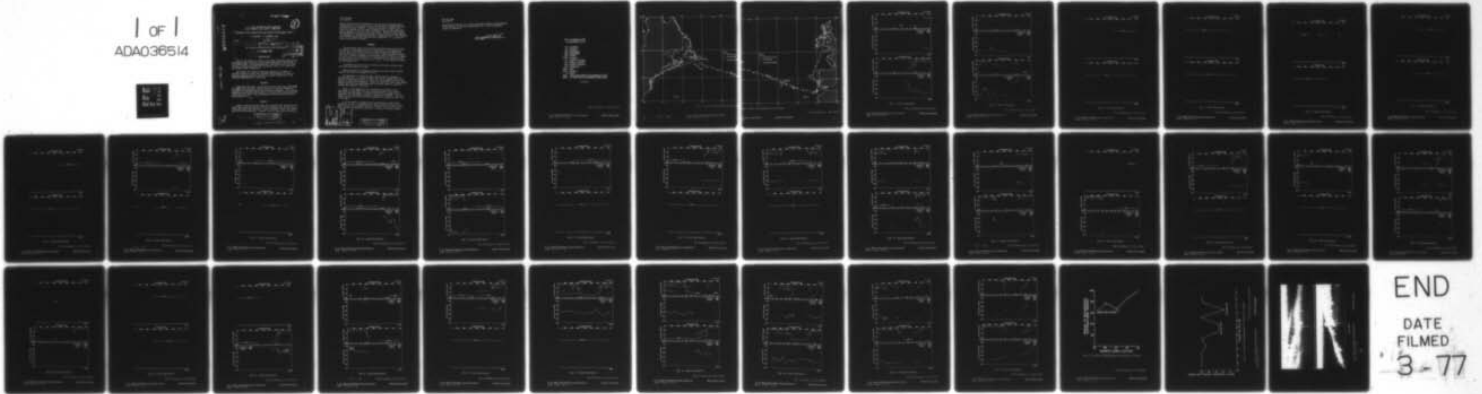
F/G 20/1

UNCLASSIFIED

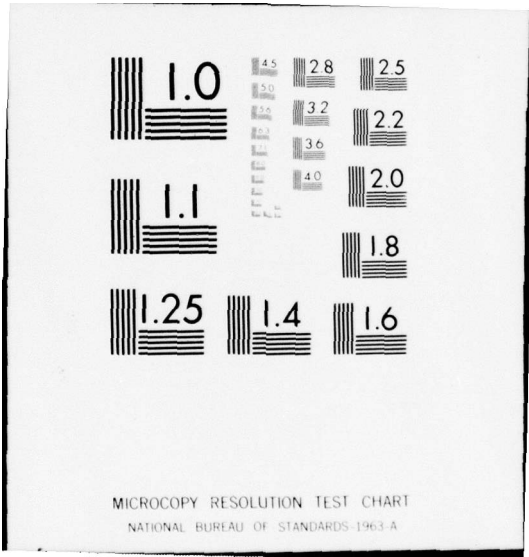
USL-TM-2211-106-67

NL

1 of 1
ADA036514



END
DATE
FILMED
3-77



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

MOST Project - 2

①

U. S. NAVY UNDERWATER SOUND LABORATORY
FORT TRUMBULL, NEW LONDON, CONNECTICUT

6 SCATTERING LAYER OBSERVATIONS MADE DURING PROJECT EARS CRUISE I
28 OCTOBER - 13 DECEMBER 1966.

9 Technical memo. by Donald
Dr. A. Hull

USL Technical Memorandum No. 2211-106-67

11 18 September 1967

12 39p. INTRODUCTION

USL-TM- D D C
MAR 7 1977
D

This is the fourth in a series of technical memoranda dealing with environmental data obtained during Project EARS Cruise I (28 October-13 December 1966). This memorandum deals specifically with the observations of scattering layers made during the cruise at 12.0 KHz with the standard ship's fathometer.

The results of biological sampling conducted at a number of locations along the track, are presently being analyzed in order to identify organisms present, and will be reported separately in USL Technical Memorandum No. 2213-177-67.

ANALYSIS

Continuous PDR traces were obtained by both AGOR ships, USNS SANDS and LYNCH, while underway. These records were visually scanned for incidence of scattering layers and the results tabulated. This listing summarizes the presence and movement of all scattering layers along the track with date, time of day, geographical position, water depth and meteorological data.

RESULTS

Figure 1 shows the cruise track and indicates both the sunrise and sunset ship positions when the PDR's were operating and whether or not scattering layers were observed. Table 1 provides a key to the symbols used in the following plots. Figures 2-31 are daily graphs showing in

DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

690114-2353

Encl No 6 to USN/USL ltr ser 2020-1 of

Encl. (6)

254200

X

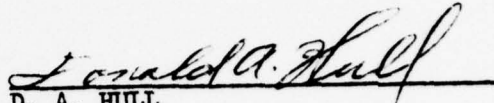
001747
ADA036514

2211-106-67

001747
Sp.2

USL Tech Memo
2212-106-67

represent the findings at a single (convient) frequency, investigation of the response of the scattering population to other frequencies should be considered.


D. A. HULL

KEY TO SYMBOLS USED
IN FIGURES 2 TO 36


SR - SUNRISE
SS - SUNSET
MR - MOONRISE
MS - MOONSET
CLR - CLEAR
CLDY - CLOUDY
LC - LIGHTY CLOUDY
PC - PARTLY CLOUDY
MC - MOSTLY CLOUDY
OC - OVERCAST
FOG - FOG
DRZL - DRIZZLE
R - RAIN
 VERY DARK AREA OF SCATTERING AT TOP
OF TRACE BUT NO DEFINATE LAYER SEEN

TABLE I

USL Tech Memo No. 2211-106-67

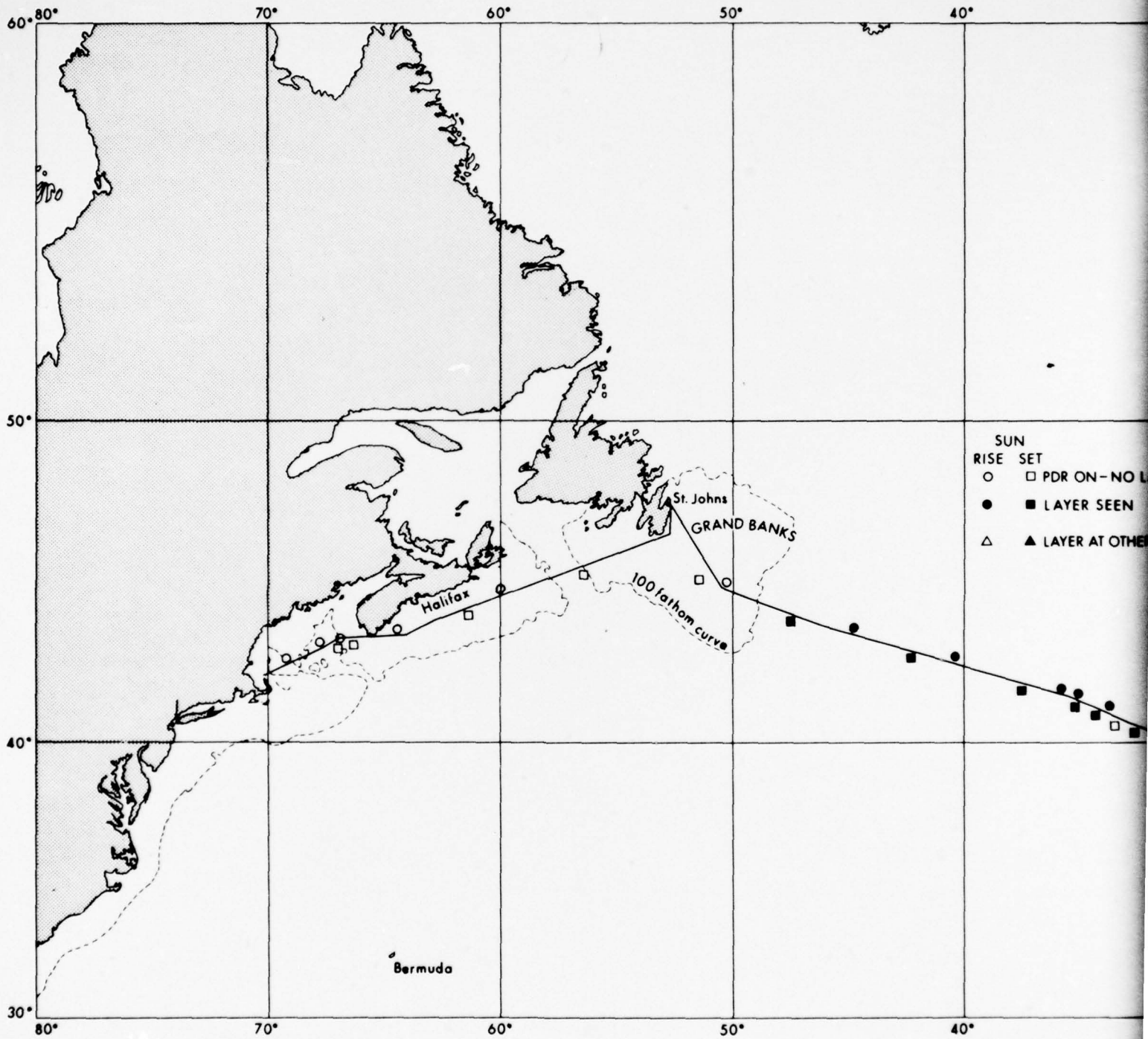
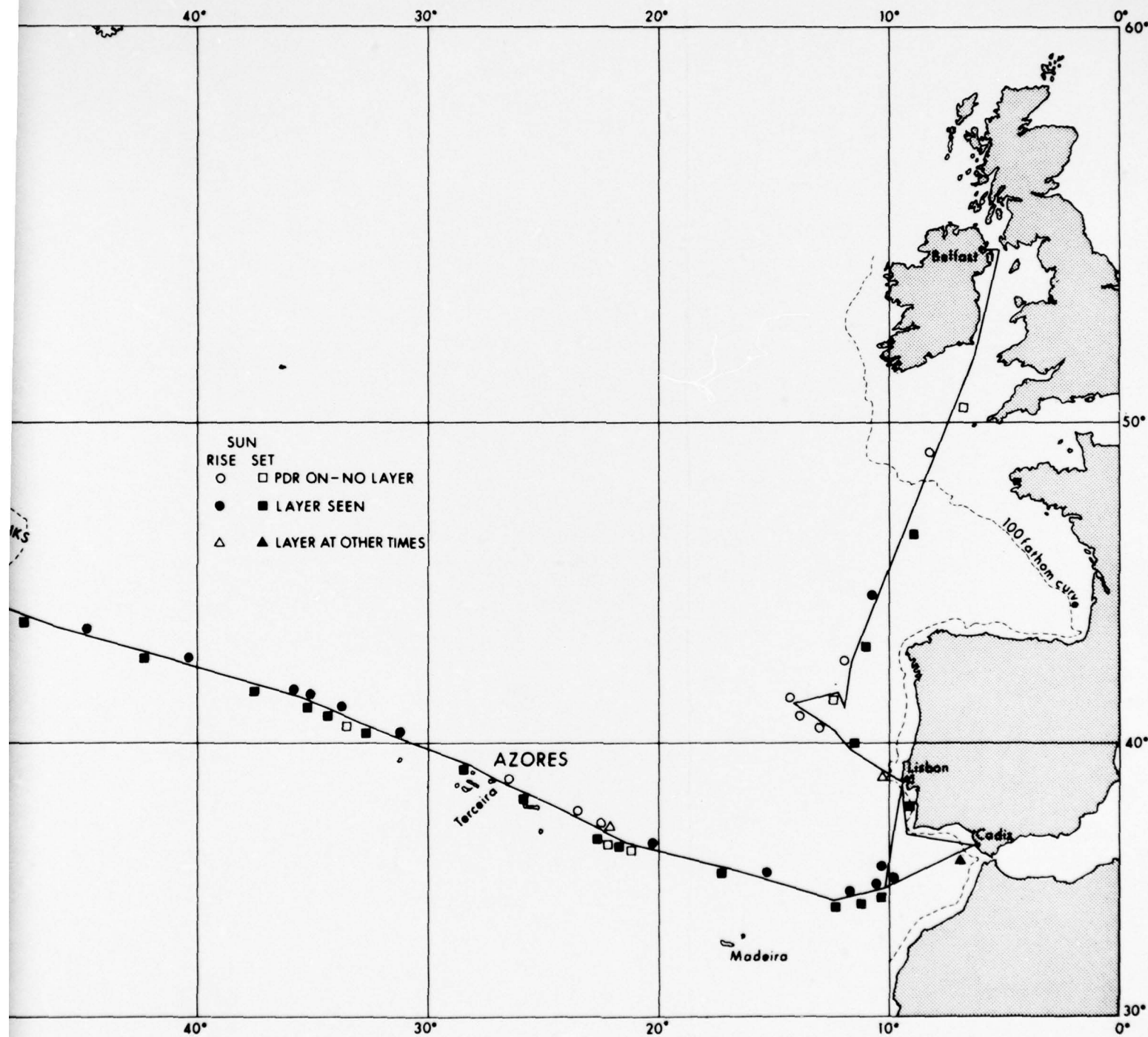


Fig. 1 - Cruise Track - Scattering Layer O

690114-0350

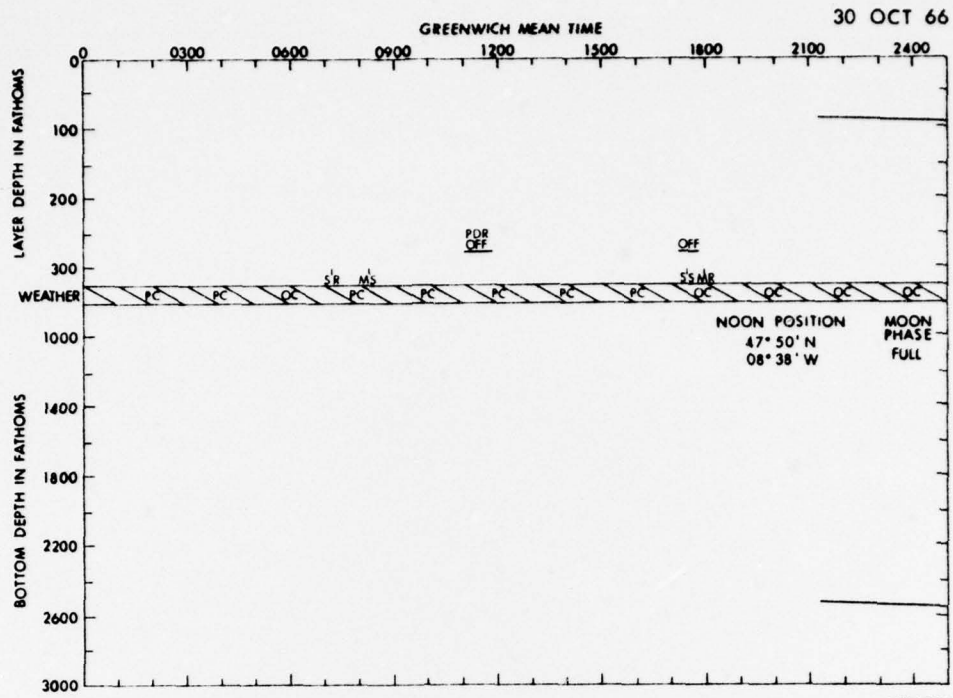
U. S. Navy Underwater Sound Laboratory
NP24 - 31535 - 10 - 67



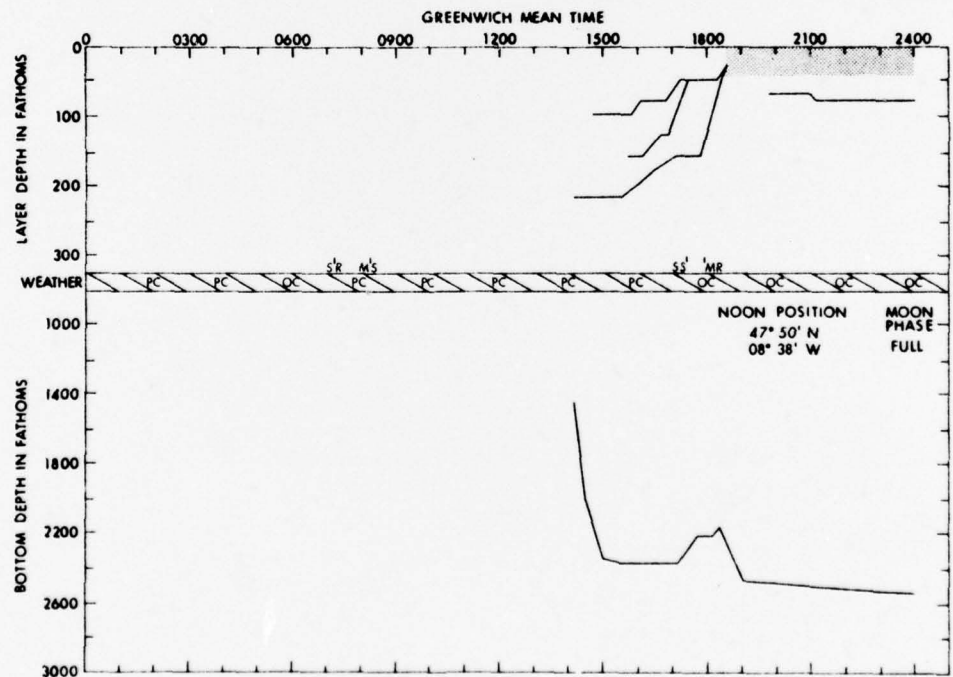
Cruise Track - Scattering Layer Observations

USL Tech Memo No. 2211-106-67

2



LYNCH



SANDS

Fig. 2 - Daily Observations

USL Tech Memo No. 2211-106-67

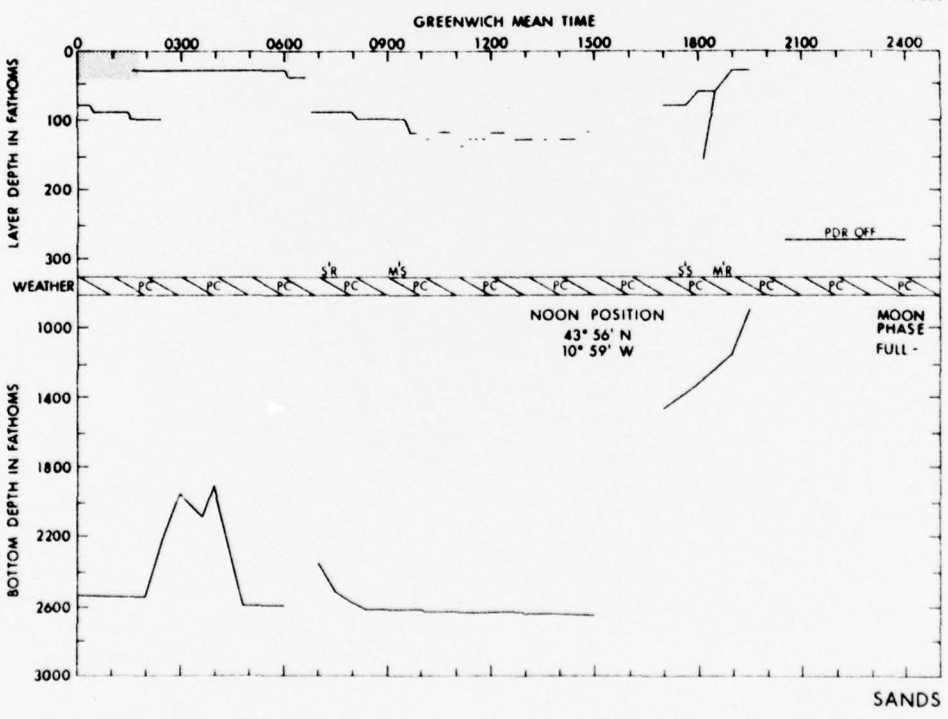
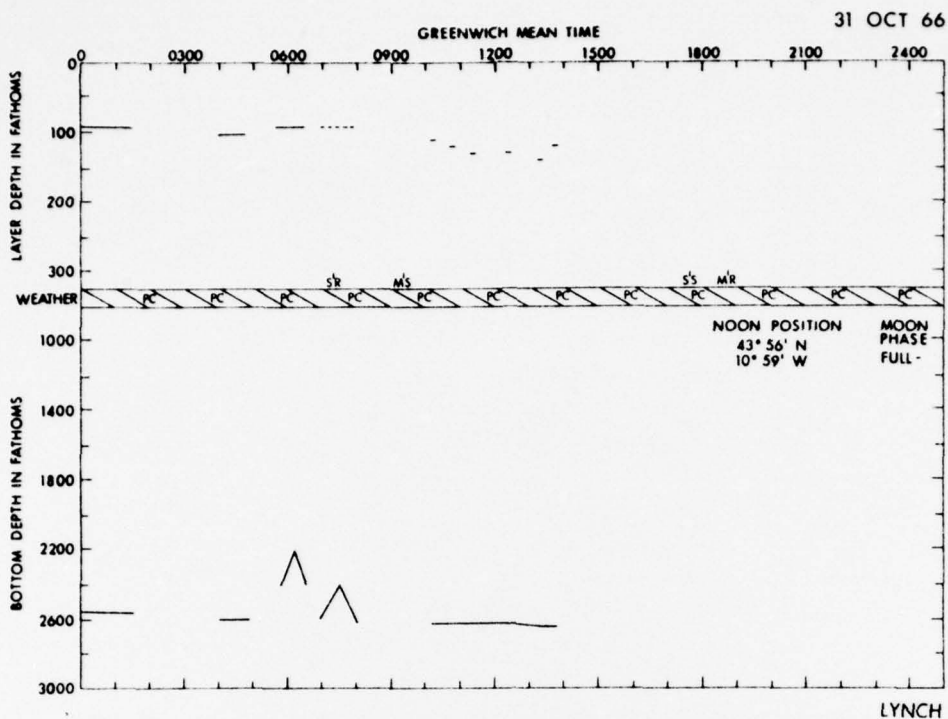
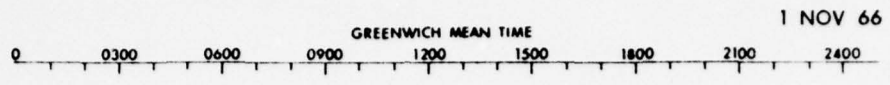
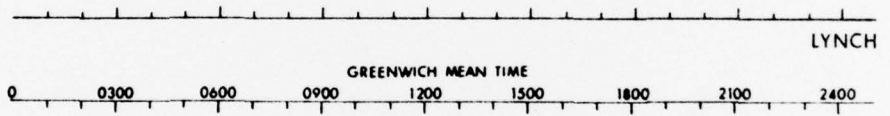


Fig. 3 - Daily Observations

USL Tech Memo No. 2211-106-67



PDR OFF



LYNCH

PDR OFF

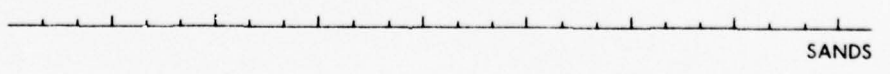


Fig. 4 - Daily Observations

USL Tech Memo No. 2211-106-67

GREENWICH MEAN TIME 2 NOV 66
0 0300 0600 0900 1200 1500 1800 2100 2400

PDR OFF

GREENWICH MEAN TIME LYNCH
0 0300 0600 0900 1200 1500 1800 2100 2400

PDR OFF

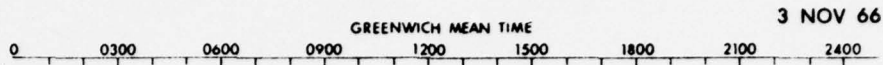
SANDS

Fig. 5 - Daily Observations

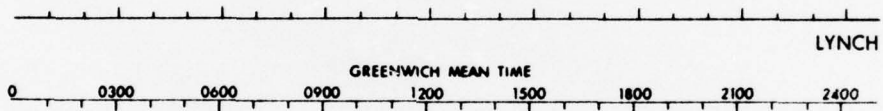
USL Tech Memo No. 2211-106-67

U. S. Navy Underwater Sound Laboratory
NP24 - 31539 - 10 - 67

Official Photograph



PDR OFF
OFF
OFF



PDR OFF

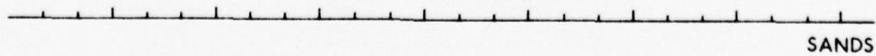
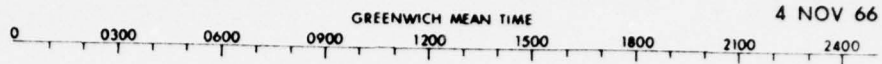
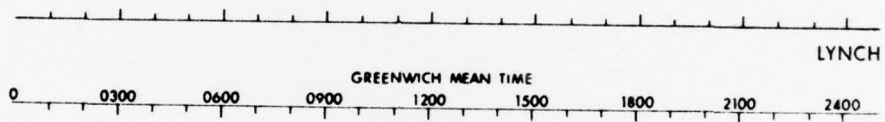


Fig. 6 - Daily Observations

USL Tech Memo No. 2211-106-67



PDR OFF



PDR OFF

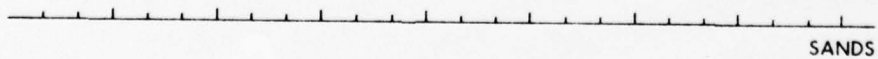
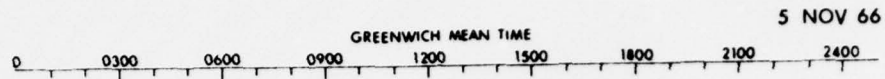


Fig. 7 - Daily Observations

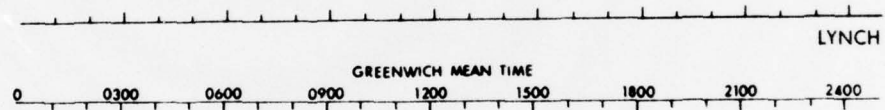
USL Tech Memo No. 2211-106-67

U. S. Navy Underwater Sound Laboratory
 NP24 - 31541 - 10 - 67

Official Photograph



PDR OFF



PDR OFF

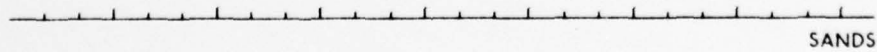


Fig. 8 - Daily Observations

USL Tech Memo No. 2211-106-67

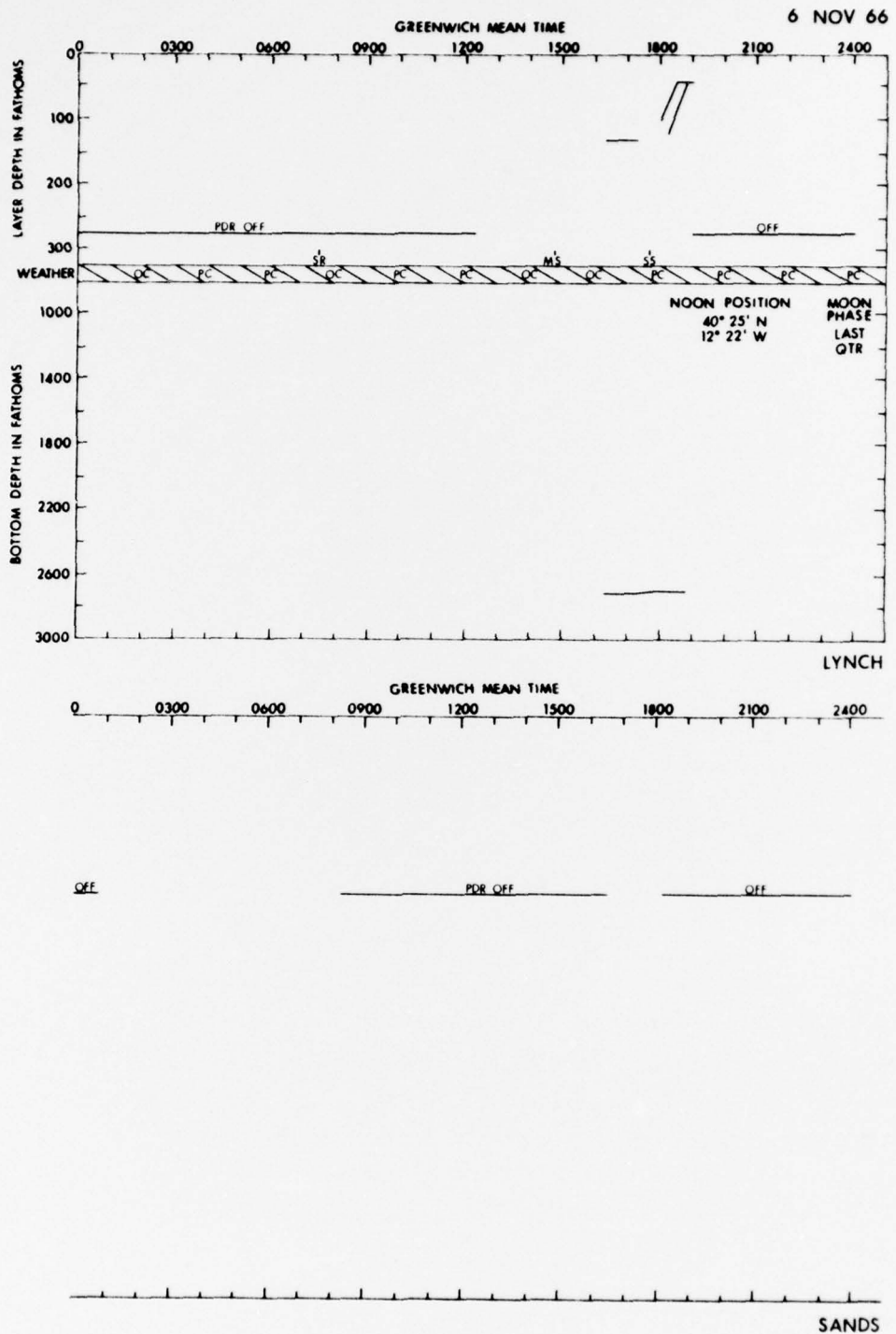


Fig. 9 - Daily Observations

USL Tech Memo No. 2211-106-67

890114 0353
U. S. Navy Underwater Sound Laboratory
NP24 - 31543 - 10 - 67

Official Photograph

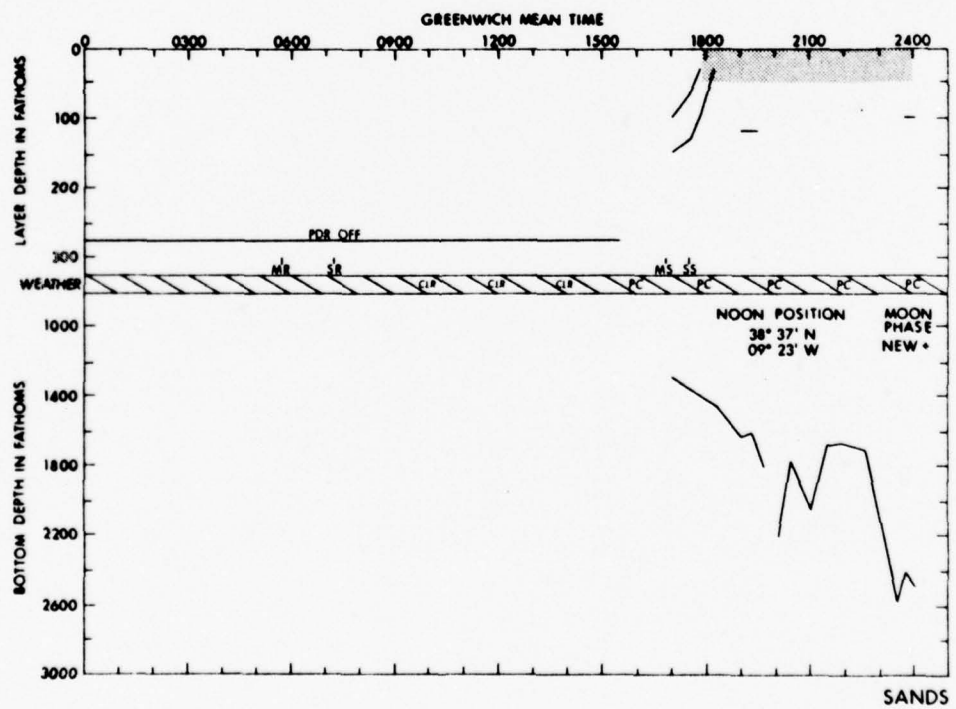
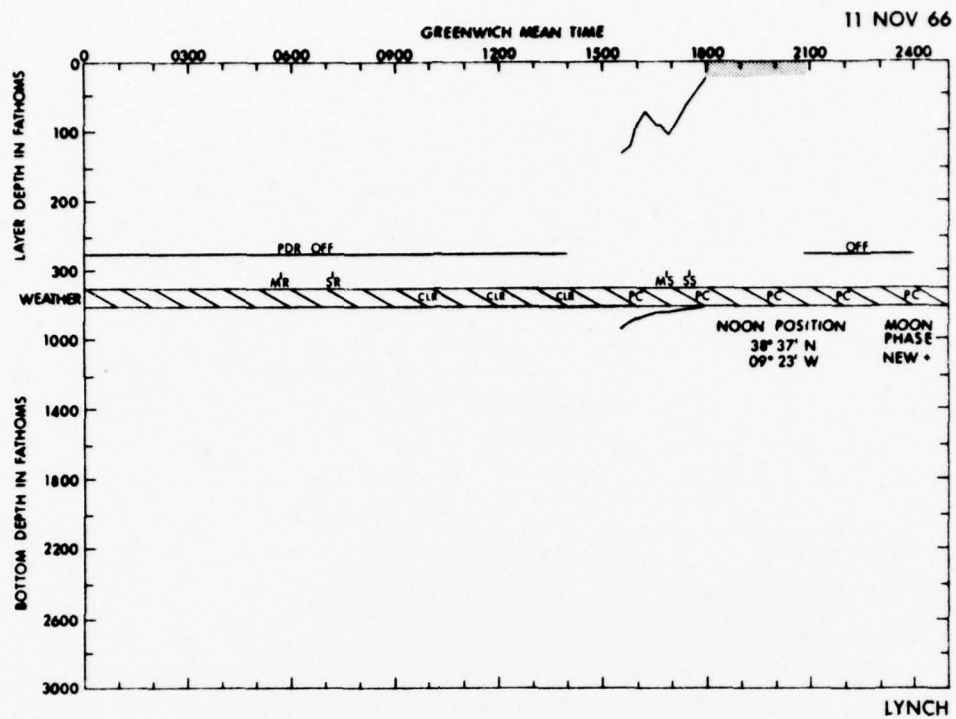
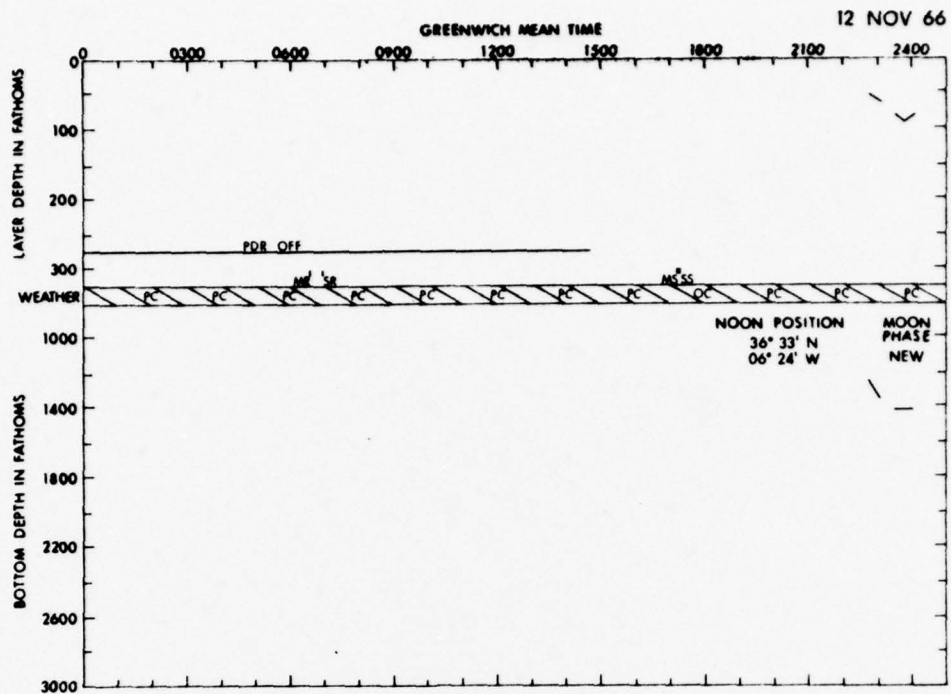
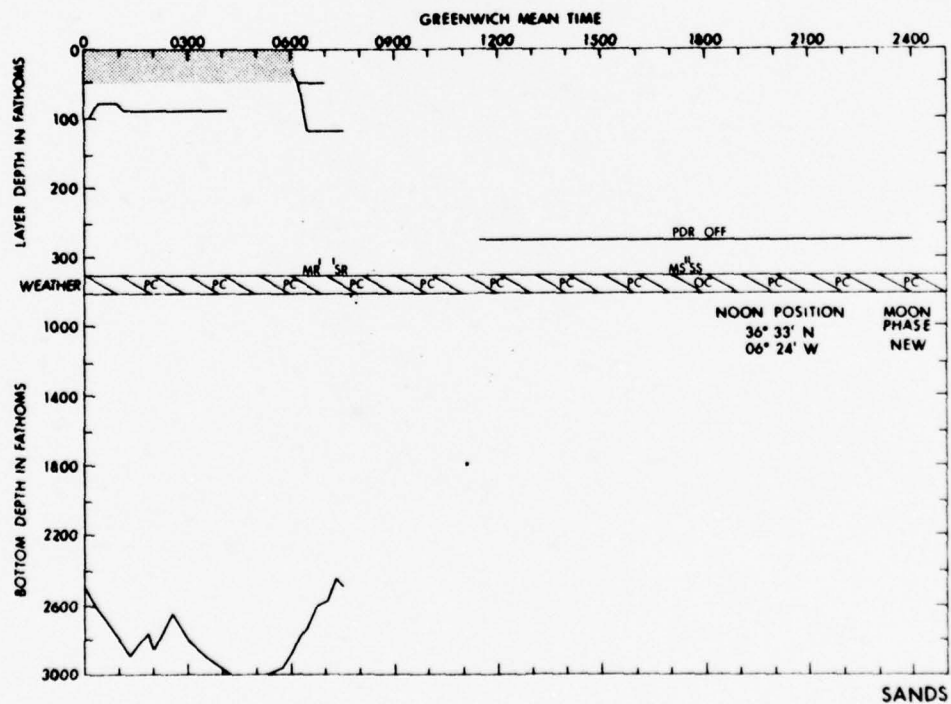


Fig. 11 - Daily Observations

USL Tech Memo No. 2211-106-67



LYNCH



SANDS

Fig. 12 - Daily Observations

USL Tech Memo No. 2211-106-67

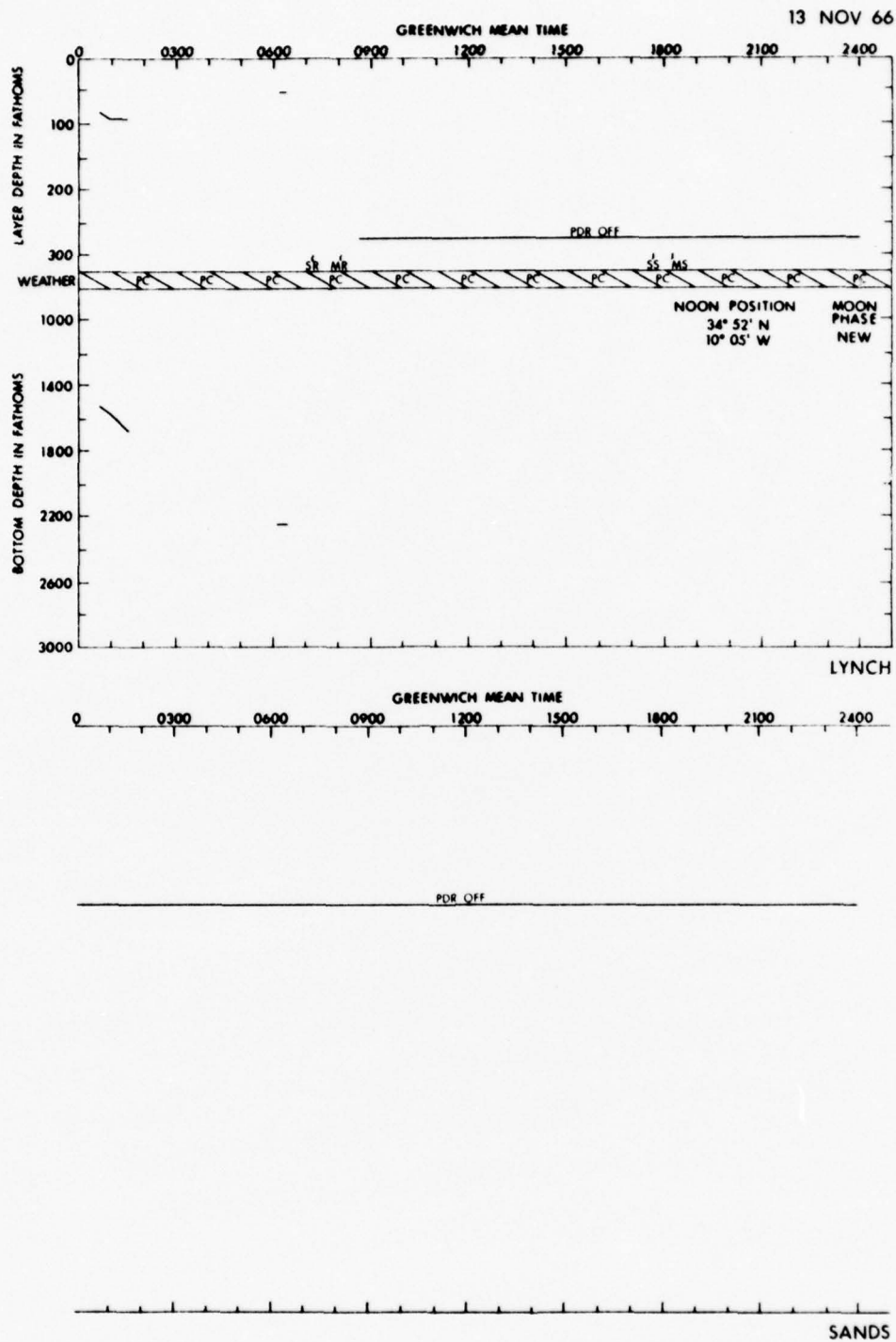


Fig. 13 - Daily Observations

USL Tech Memo No. 2211-106-67

U. S. Navy Underwater Sound Laboratory
NP24 - 31547 - 10 - 67

Official Photograph

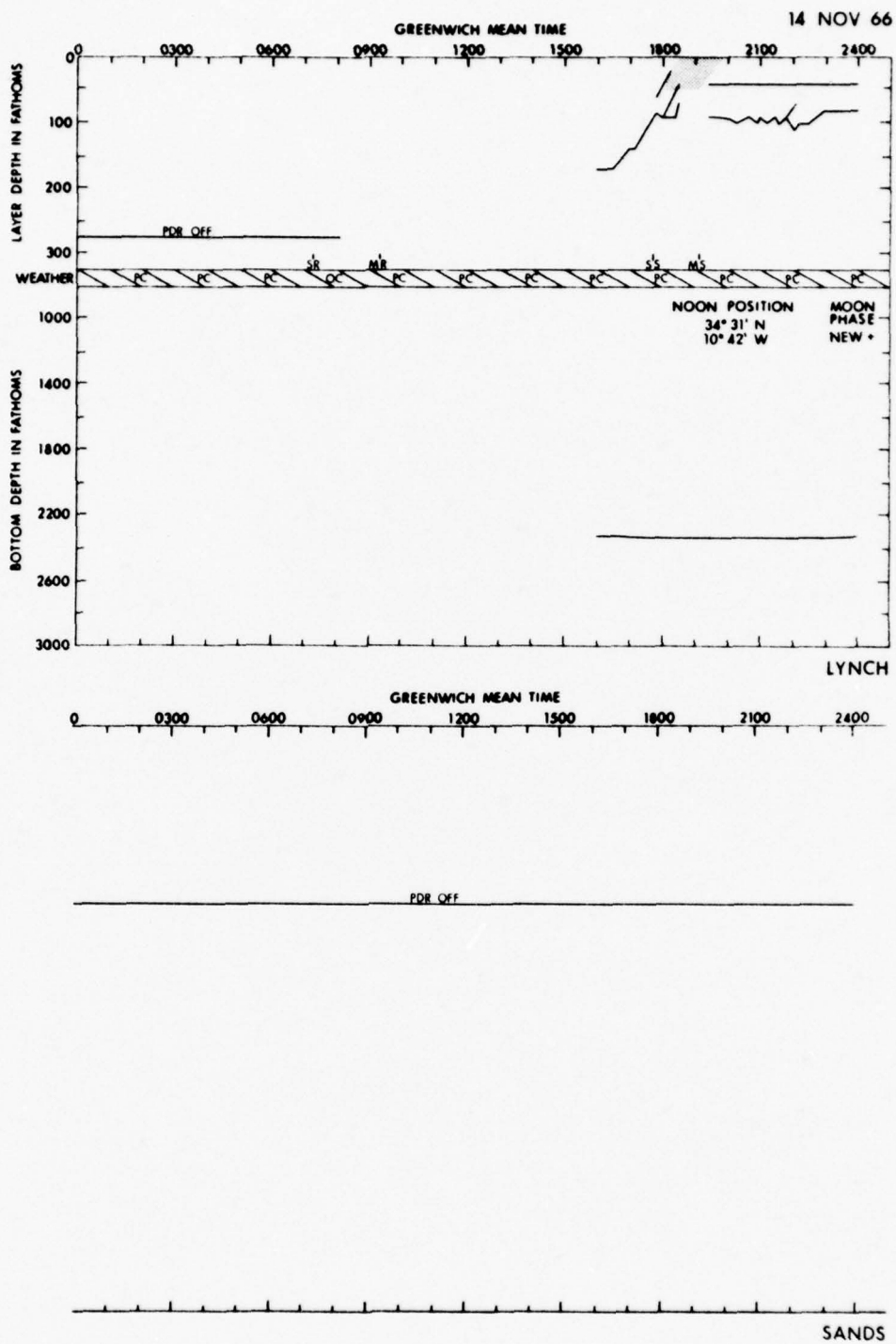


Fig. 14 - Daily Observations

USL Tech Memo No. 2211-106-67

U. S. Navy Underwater Sound Laboratory
 NP24 - 31548 - 10 - 67

Official Photograph

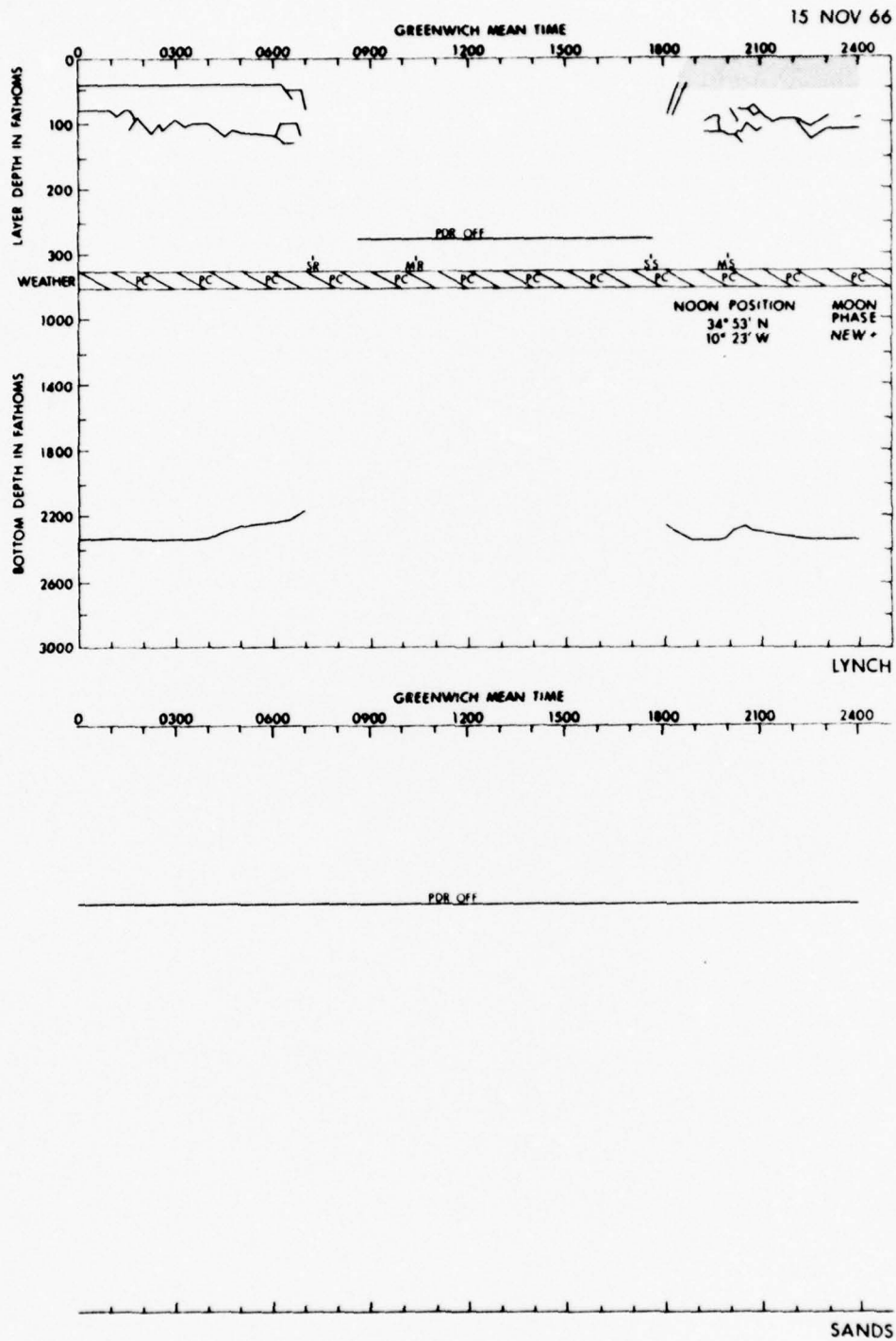


Fig. 15 - Daily Observations

USL Tech Memo No. 2211-106-67

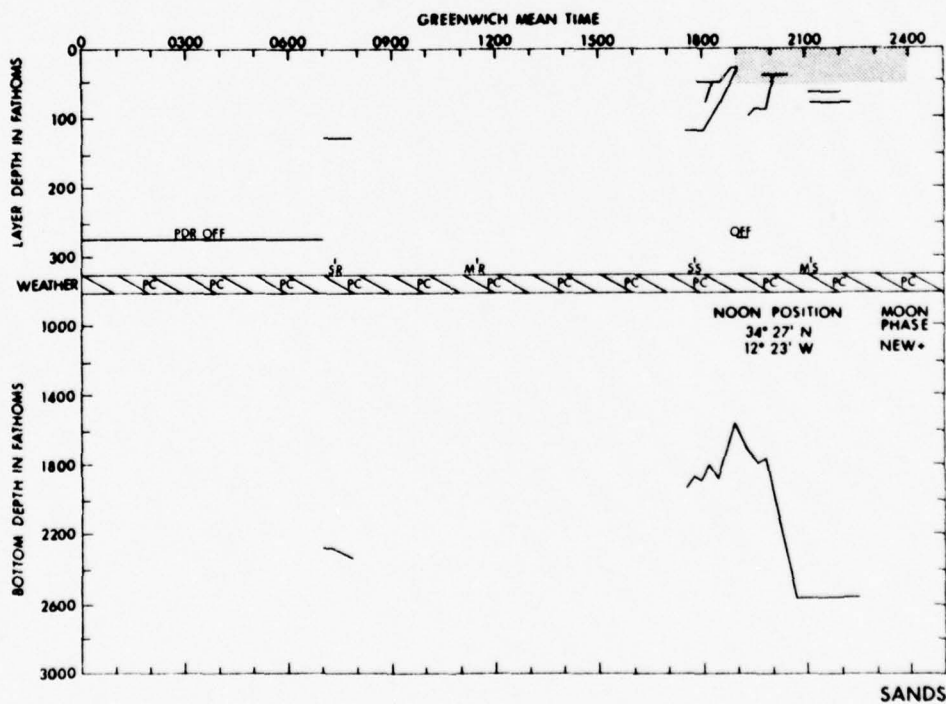
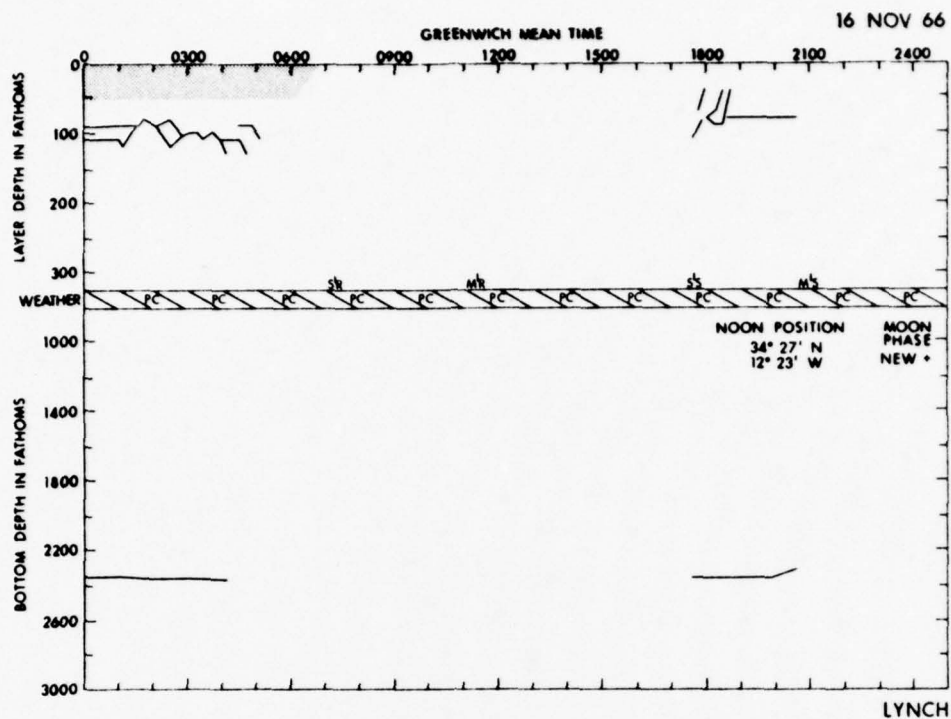


Fig. 16 - Daily Observations

USL Tech Memo No. 2211-106-67

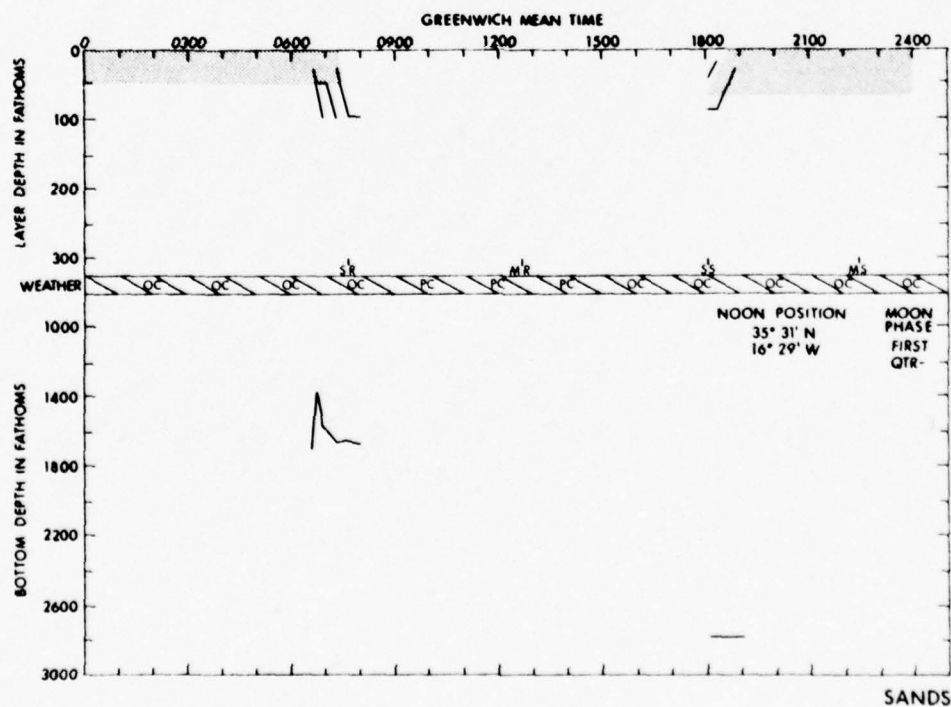
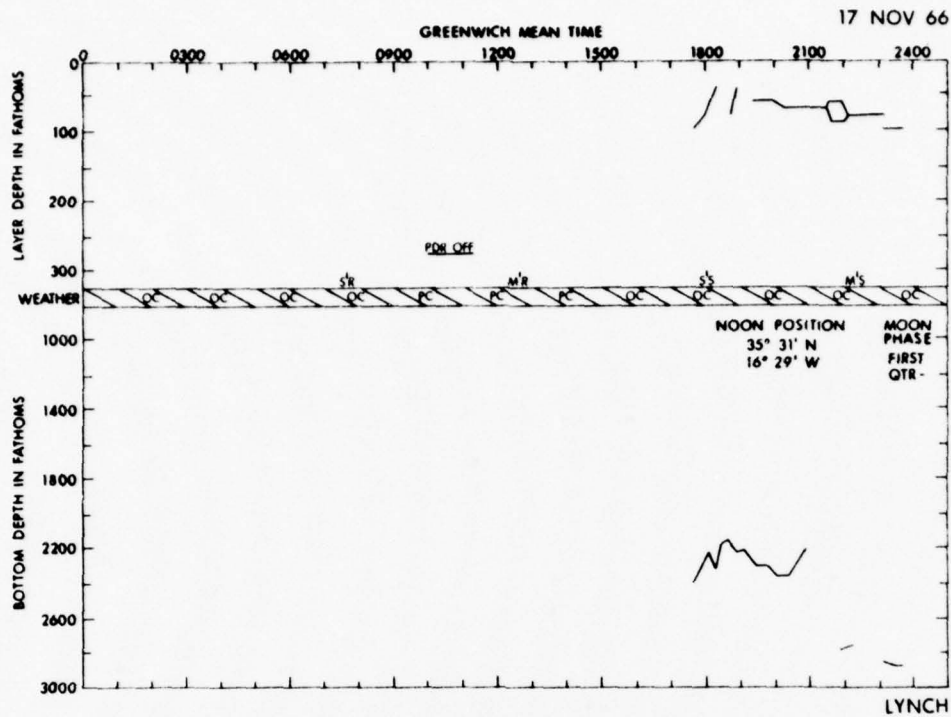


Fig. 17 - Daily Observations

690114-0359

USL Tech Memo No. 2211-106-67

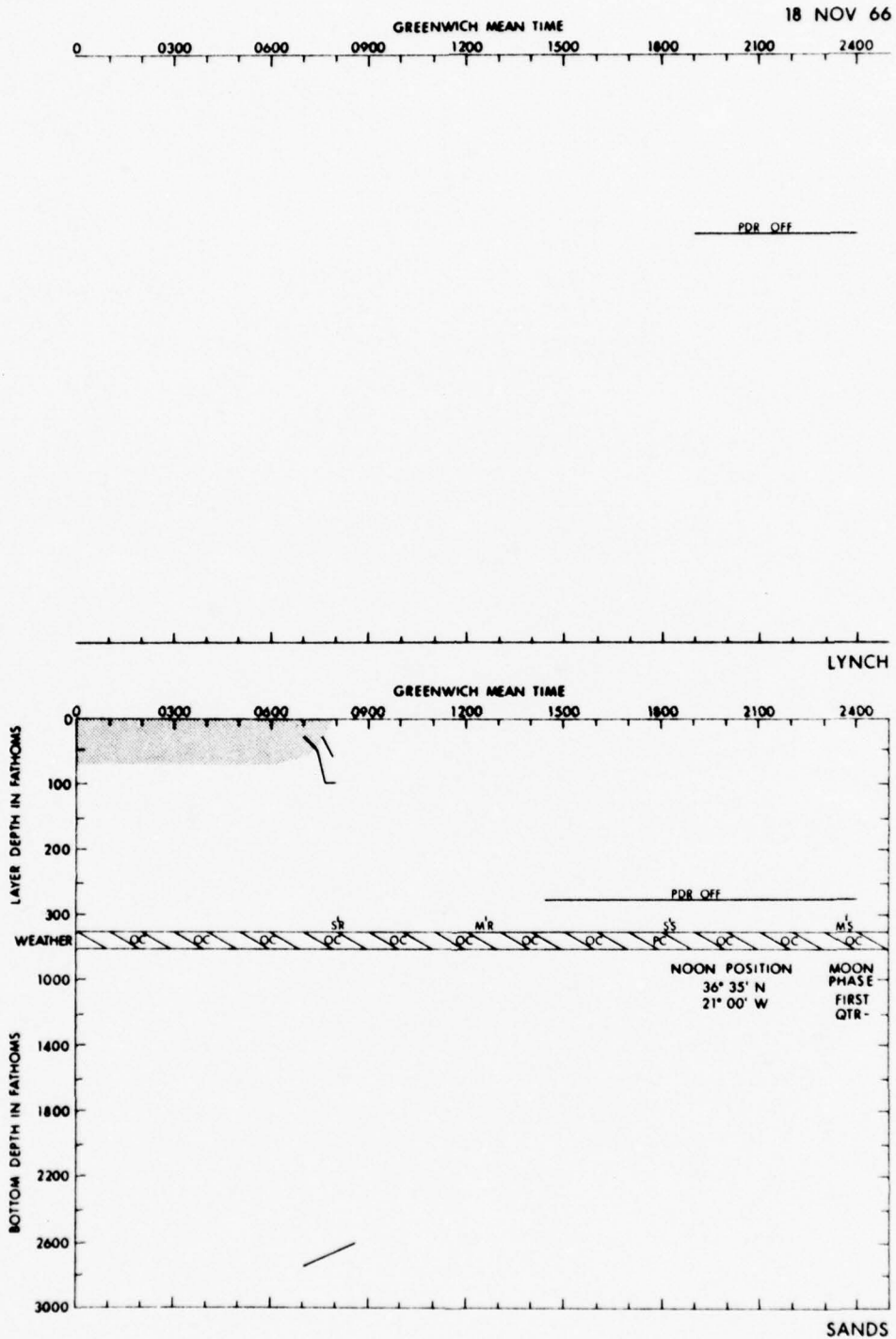


Fig. 18 - Daily Observations

USL Tech Memo No. 2211-106-67

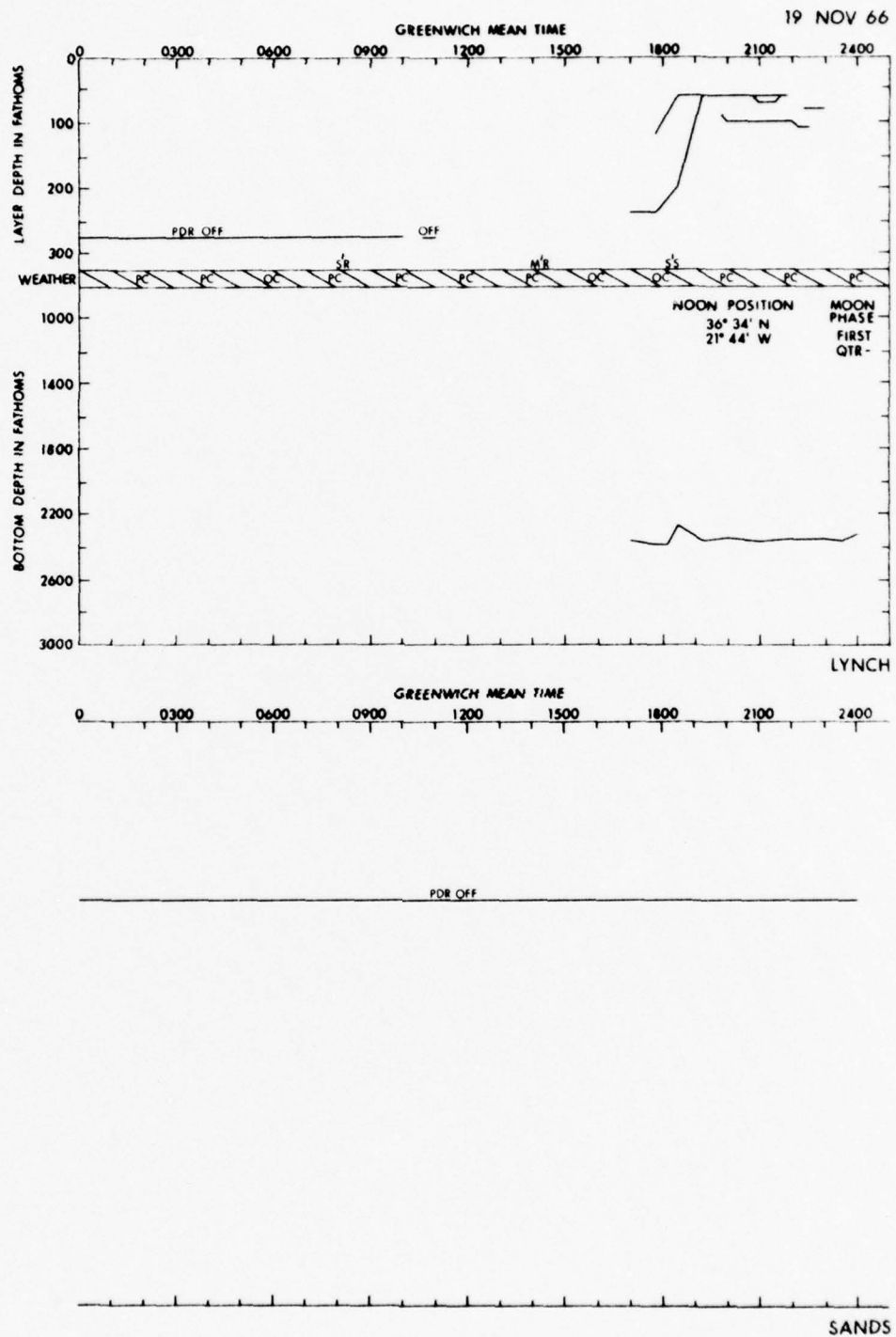


Fig. 19 - Daily Observations

USL Tech Memo No. 2211-106-67

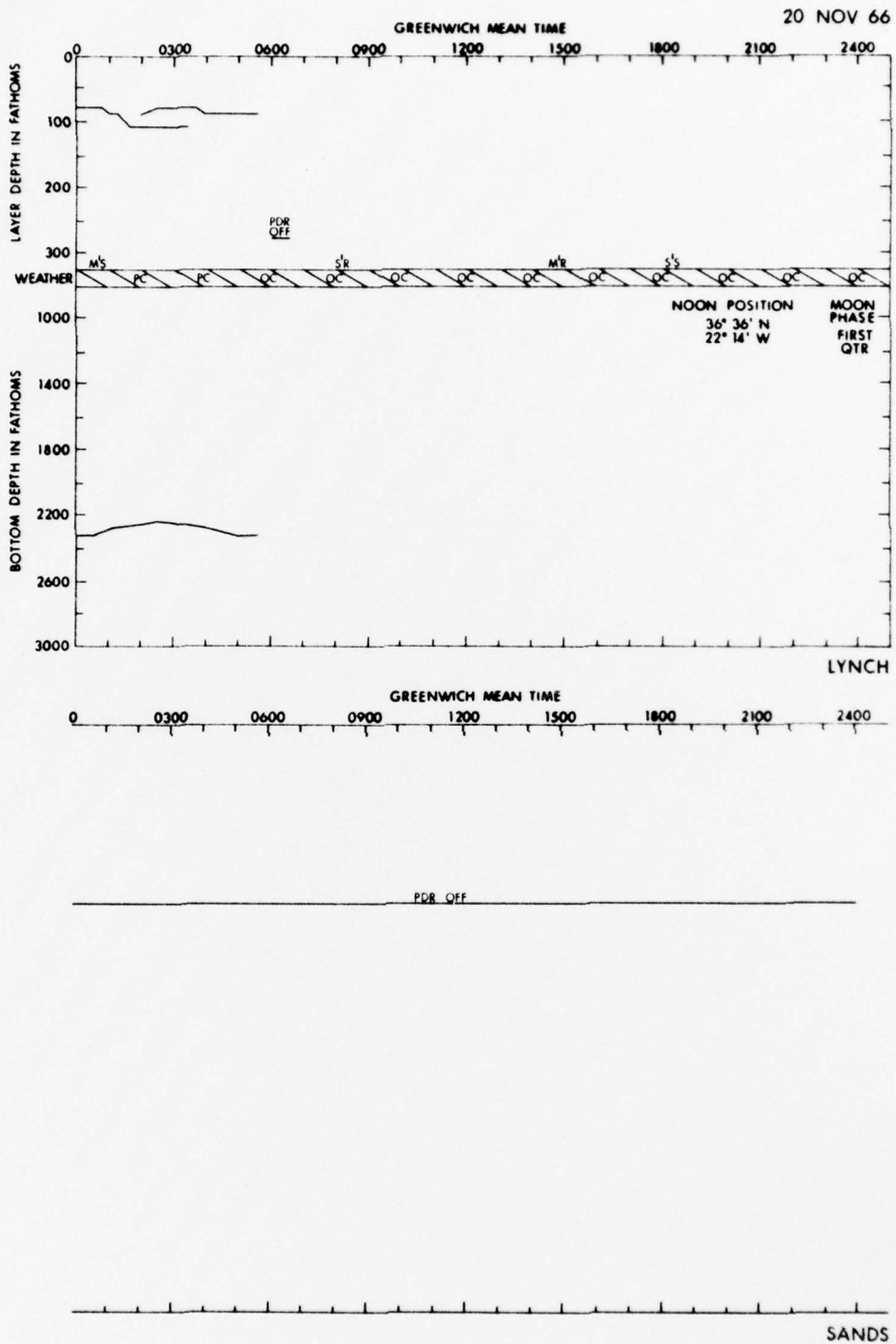


Fig. 20 - Daily Observations

USL Tech Memo No. 2211-106-67

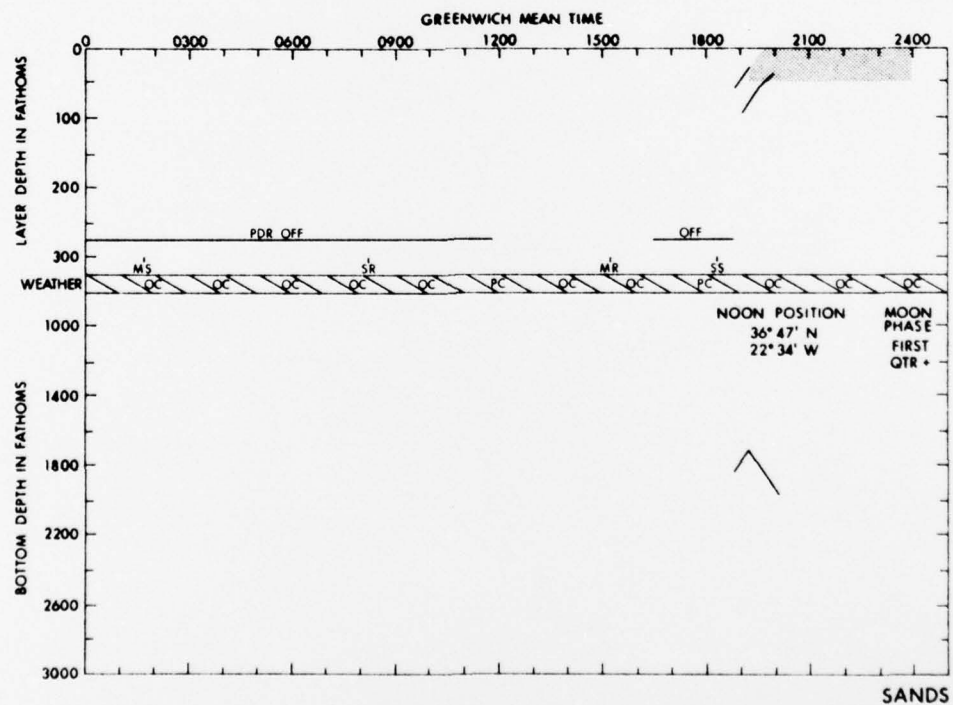
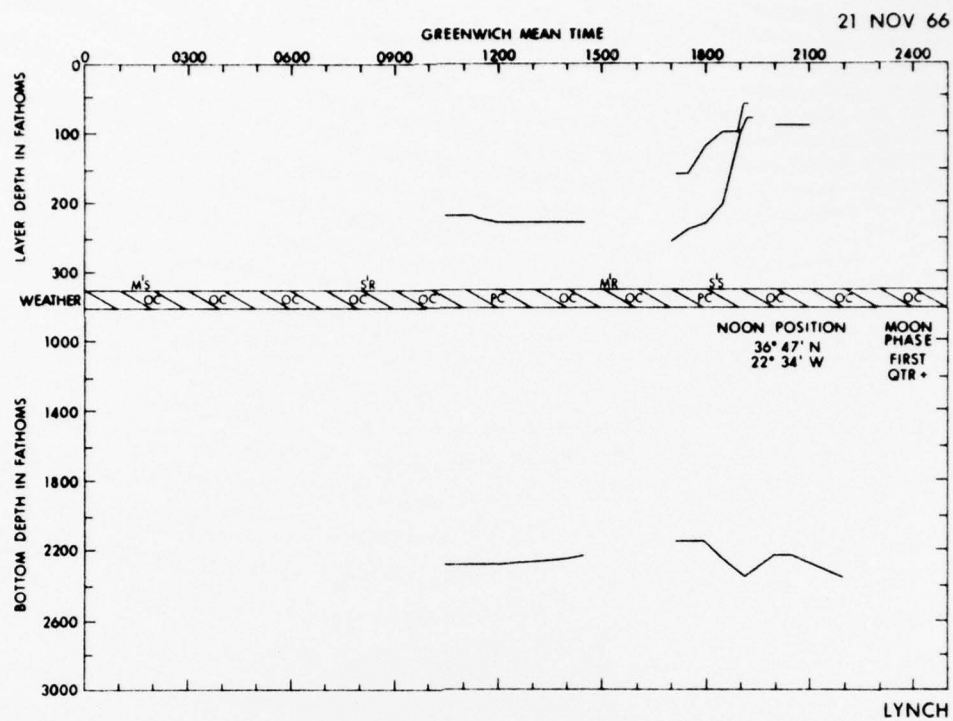
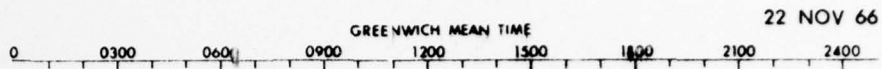


Fig. 21 - Daily Observations

USL Tech Memo No. 2211-106-67



NO DATA

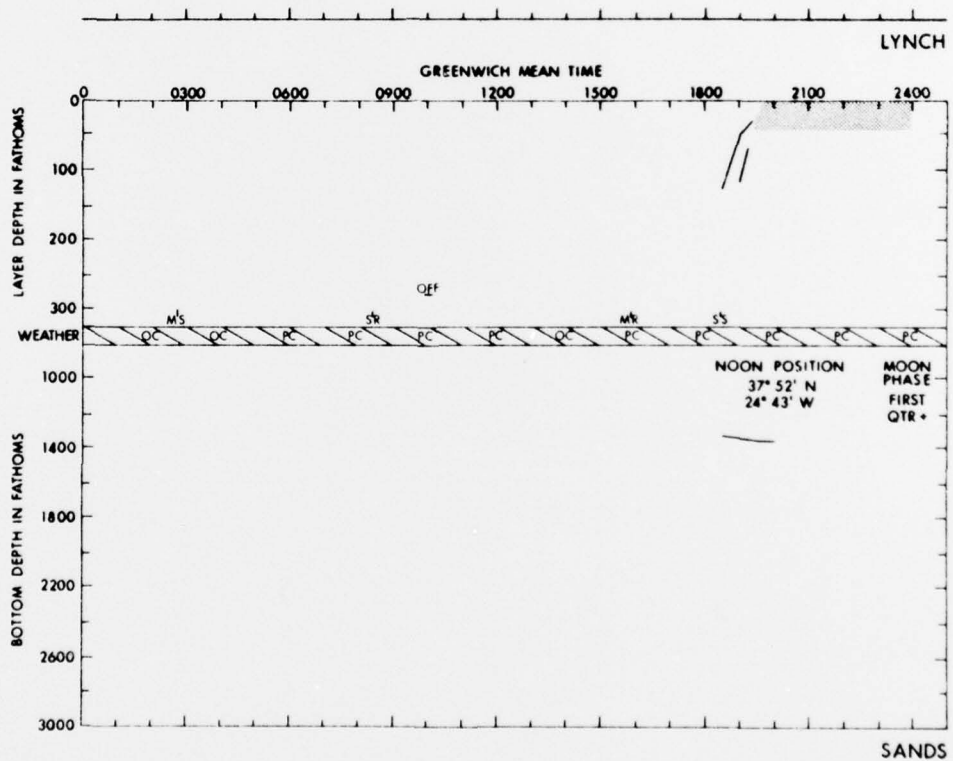
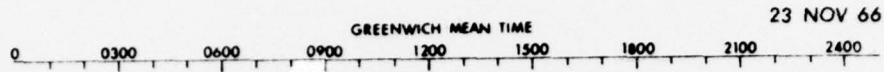
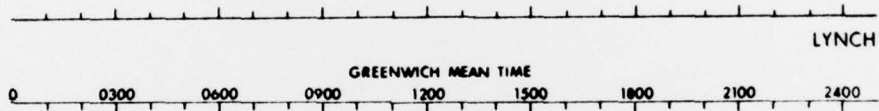


Fig. 22 - Daily Observations

USL Tech Memo No. 2211-106-67



PDR OFF



PDR OFF

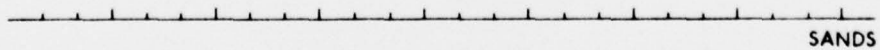


Fig. 23 - Daily Observations

USL Tech Memo No. 2211-106-67

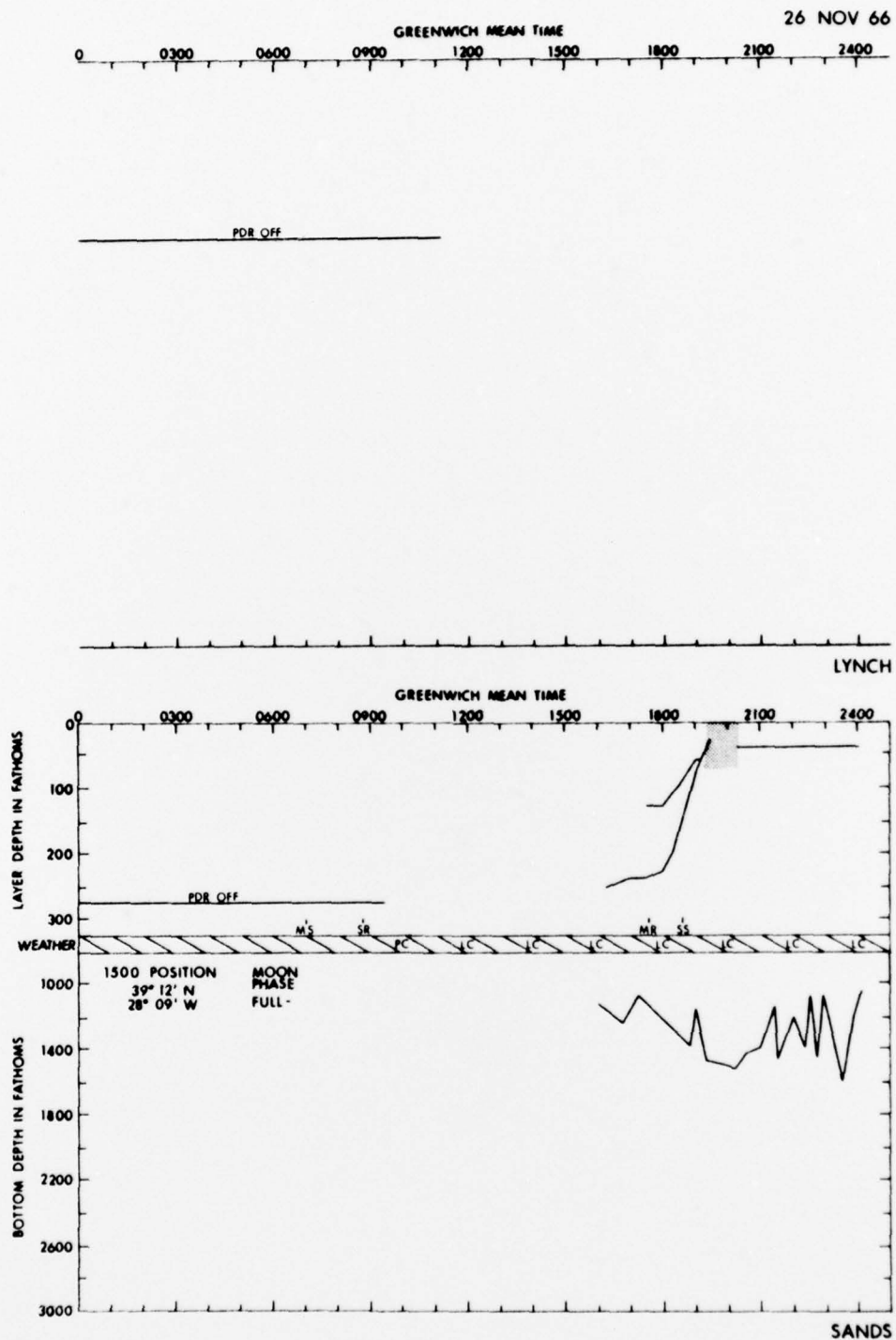


Fig. 24 - Daily Observations

USL Tech Memo No. 2211-106-67

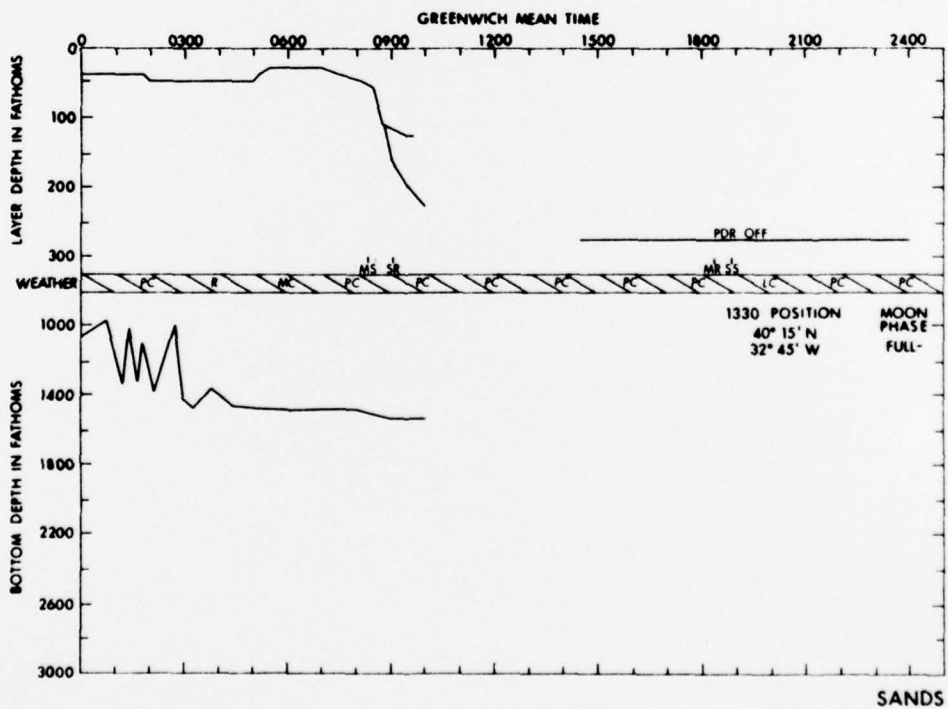
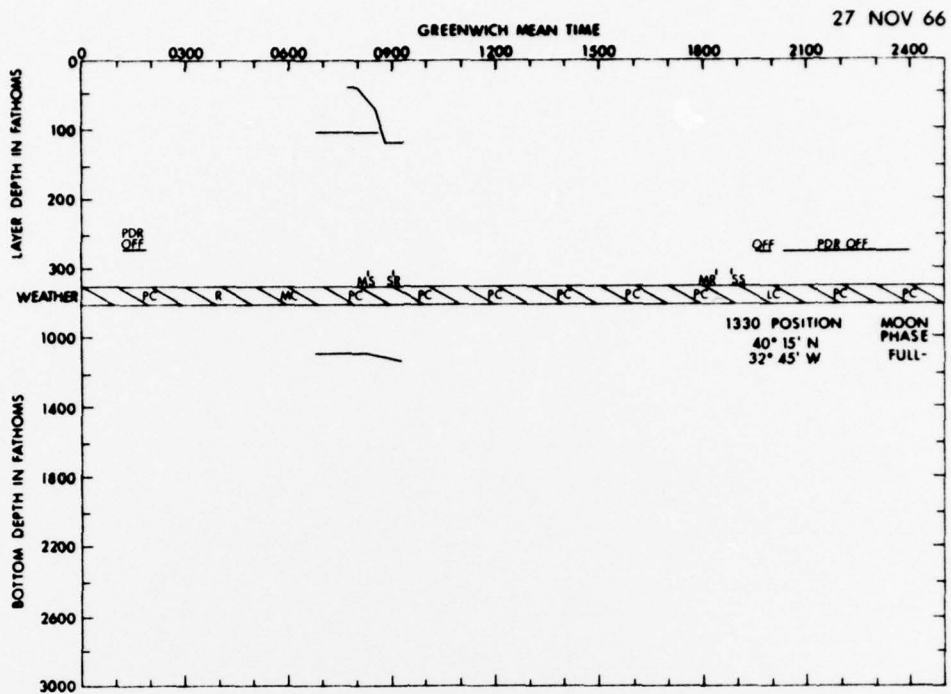


Fig. 25 - Daily Observations

690114-0353

USL Tech Memo No. 2211-106-67

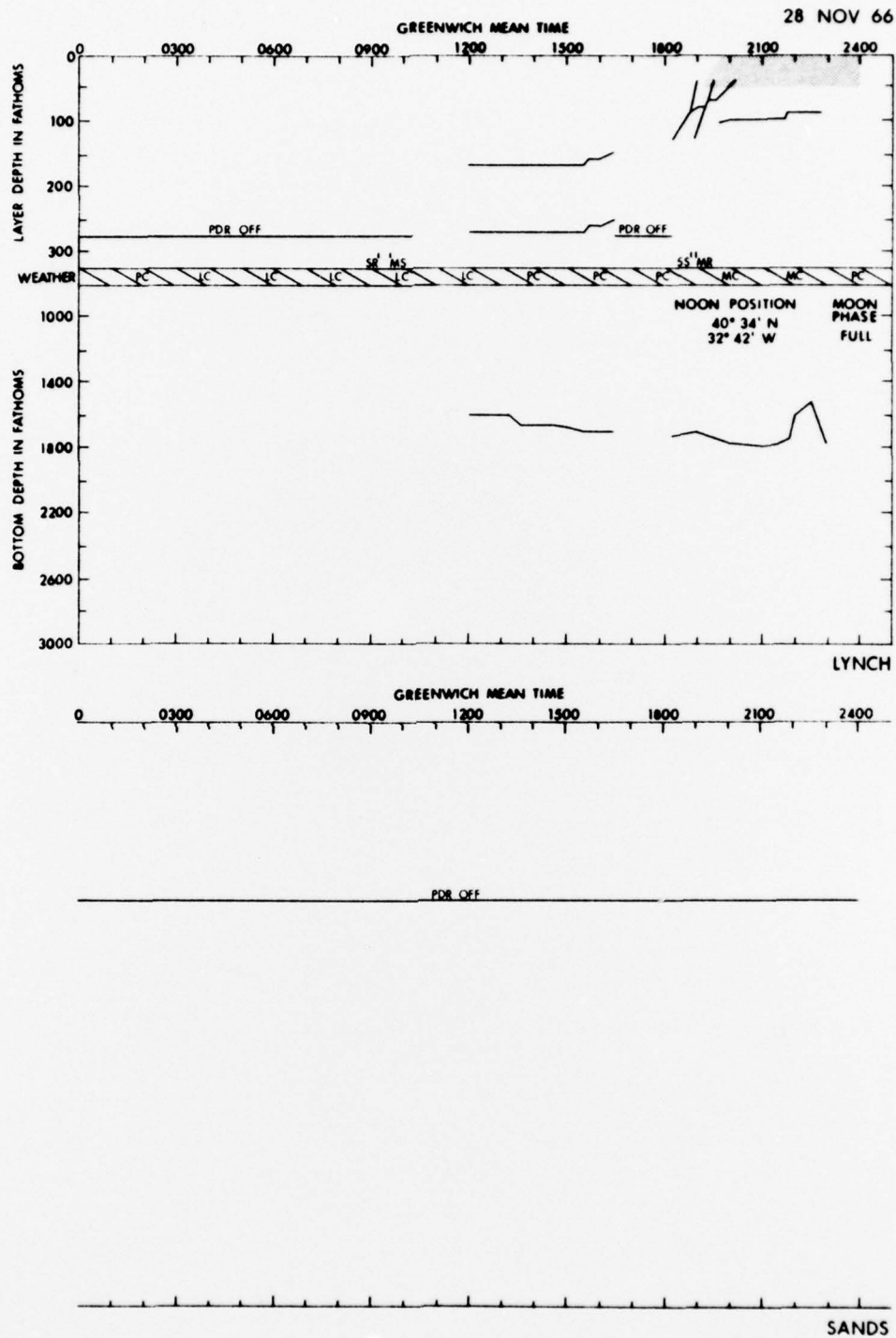


Fig. 26 - Daily Observations

USL Tech Memo No. 2211-106-67

U. S. Navy Underwater Sound Laboratory
 NP24 - 31560 - 10 - 67

Official Photograph

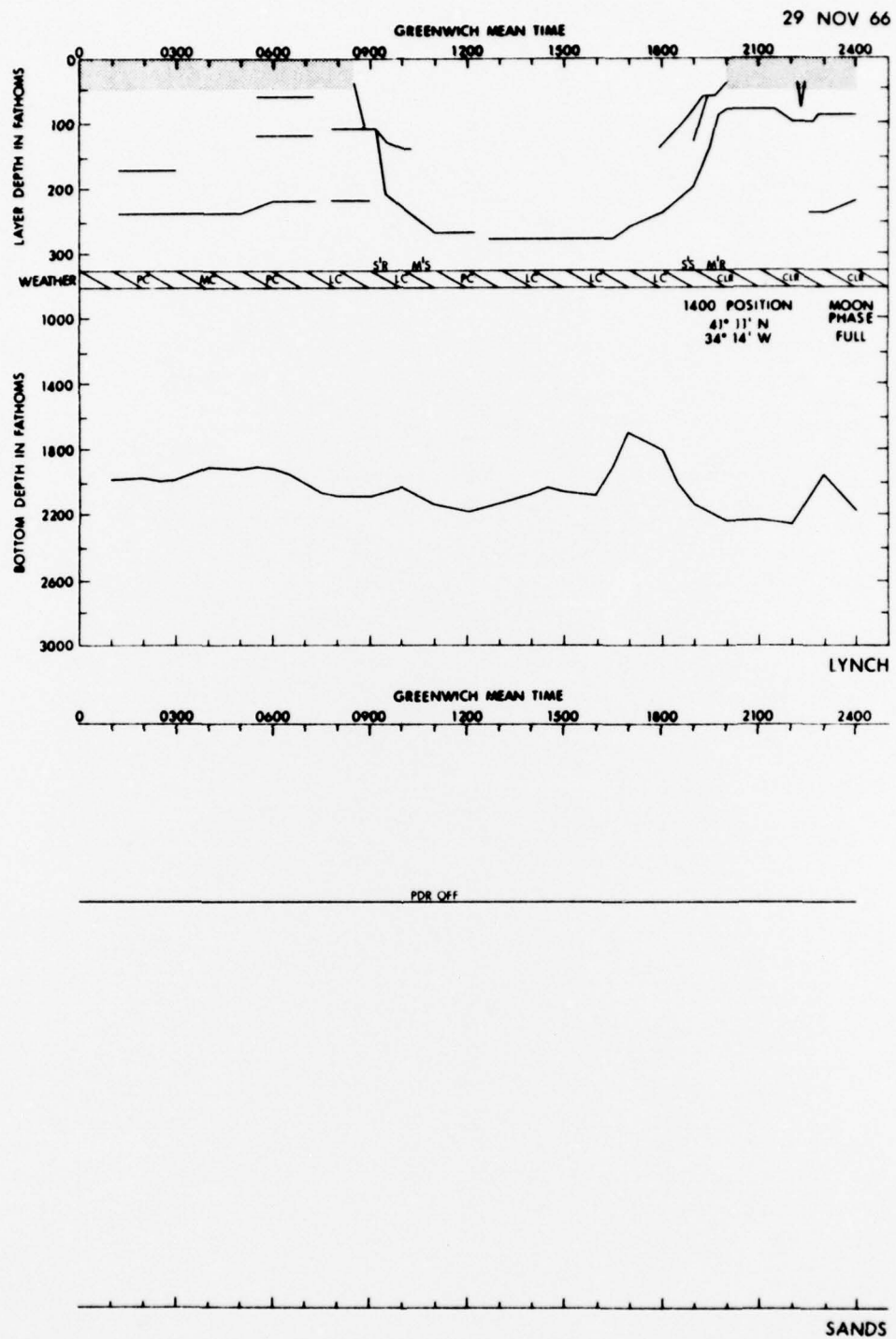


Fig. 27 - Daily Observations

USL Tech Memo No. 2211-106-67

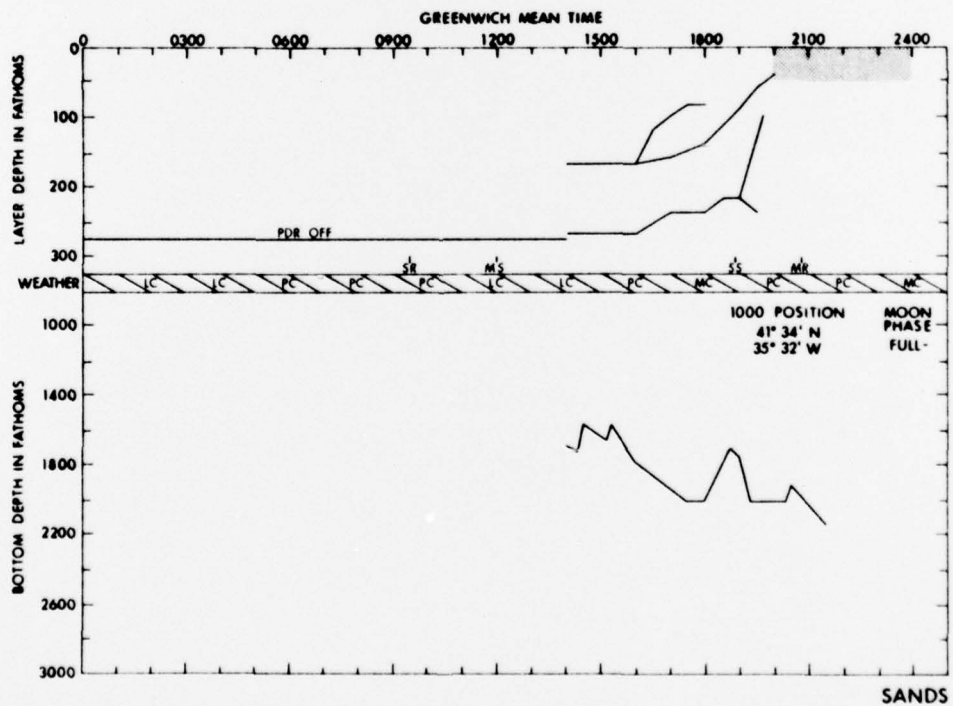
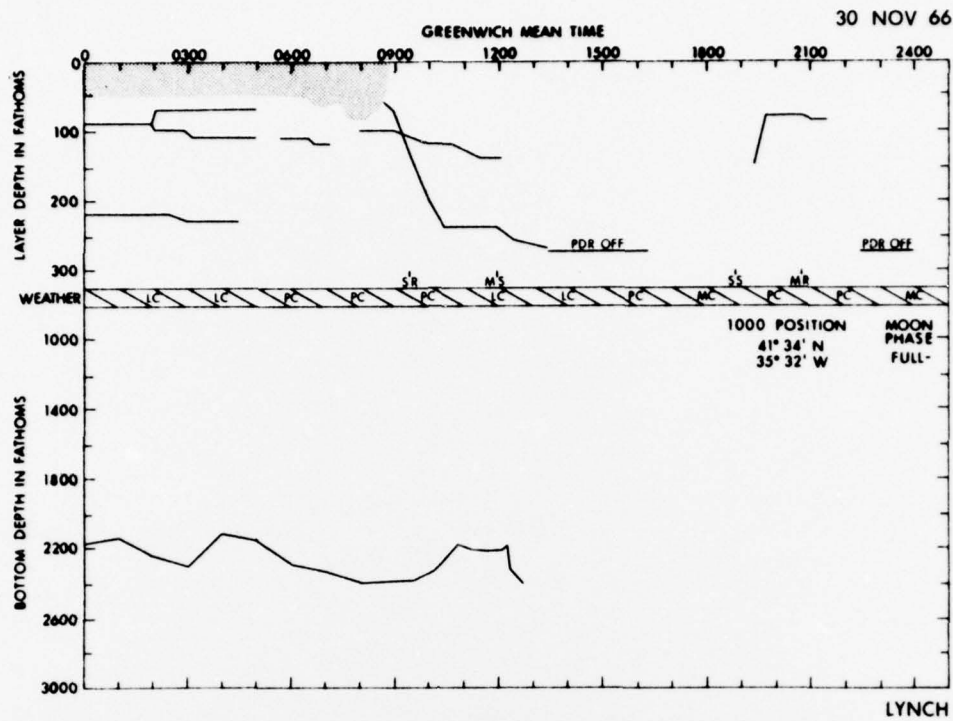


Fig. 28 - Daily Observations

USL Tech Memo No. 2211-106-67

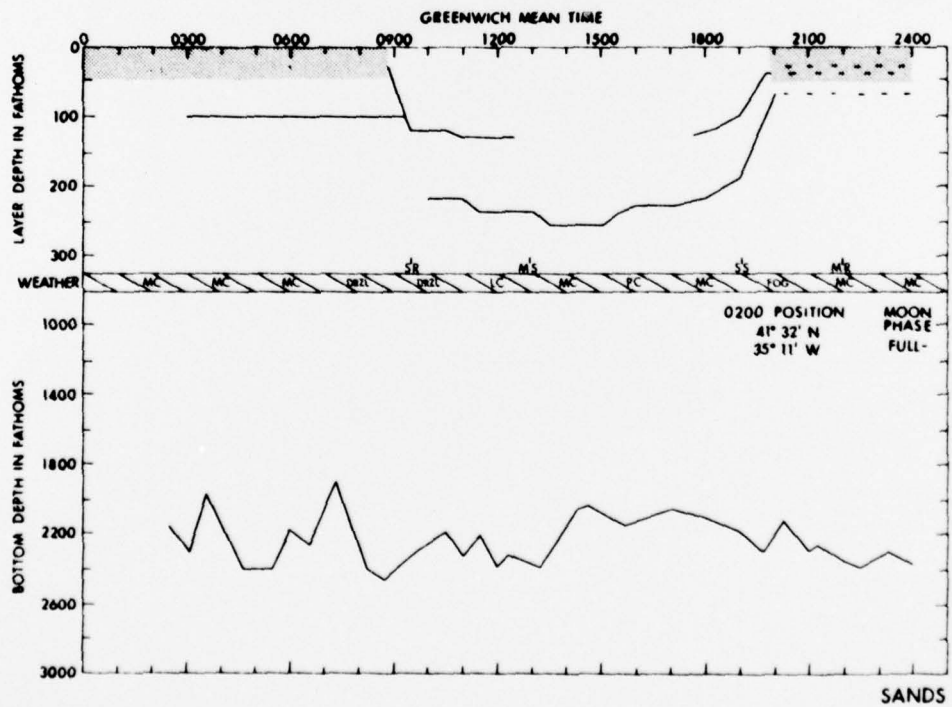
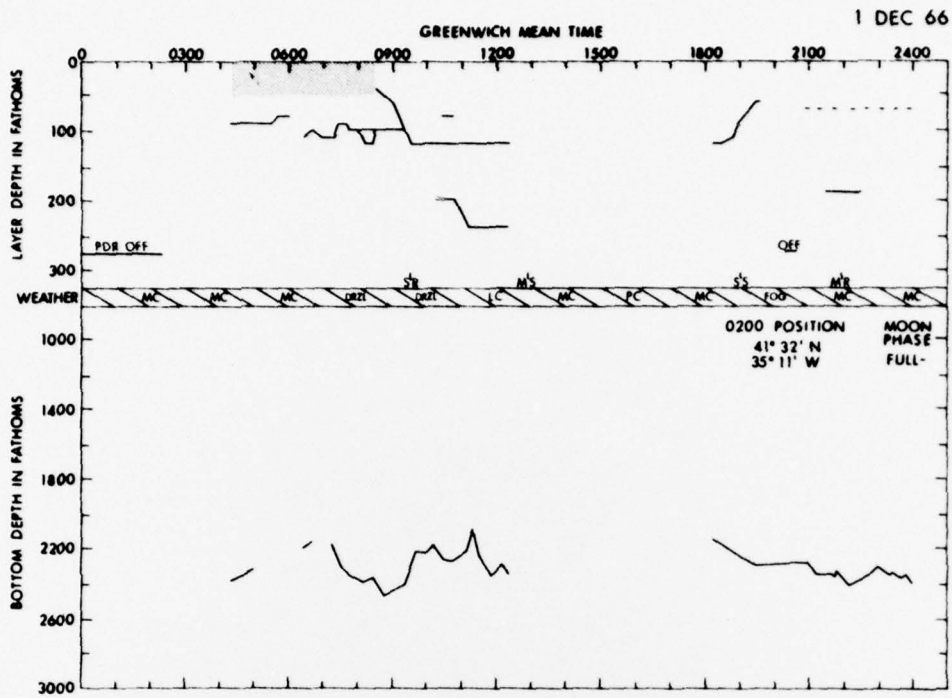


Fig. 29 - Daily Observations

USL Tech Memo No. 2211-106-67

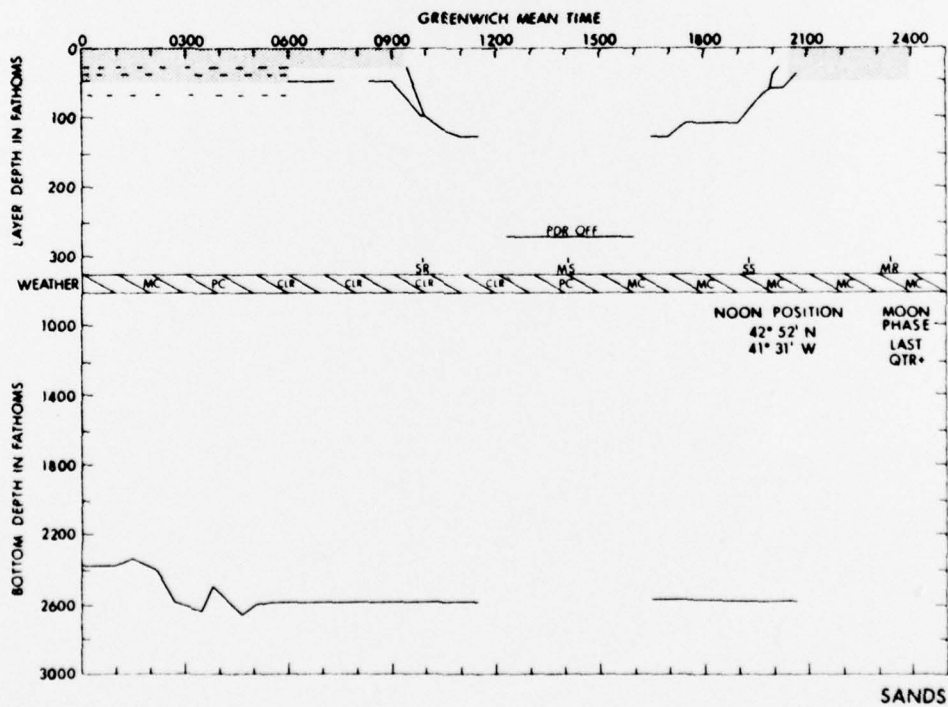
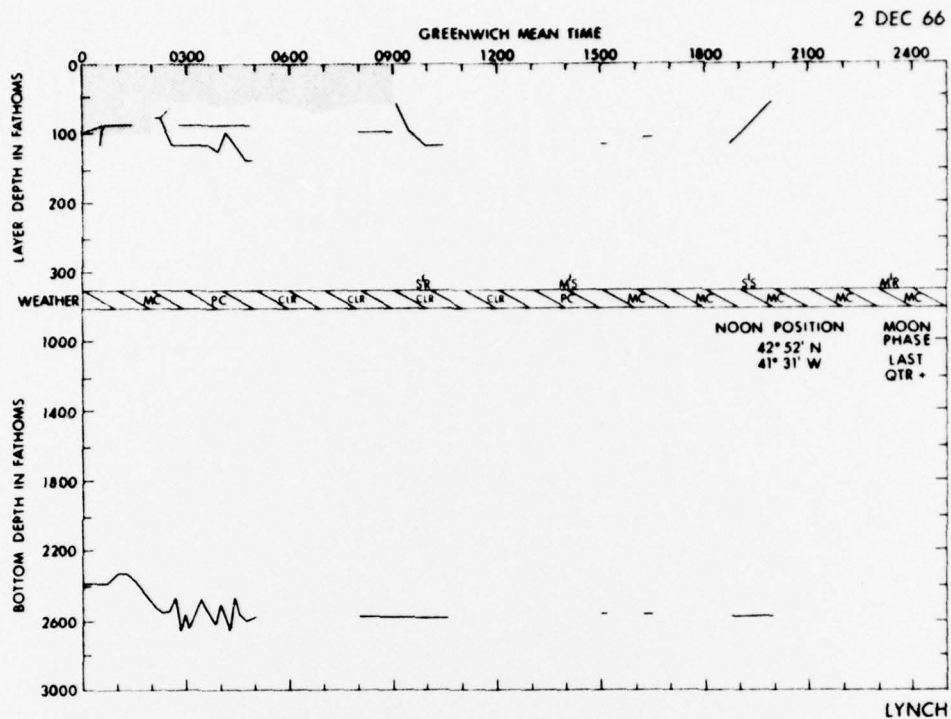


Fig. 30 - Daily Observations

USL Tech Memo No. 2211-106-67

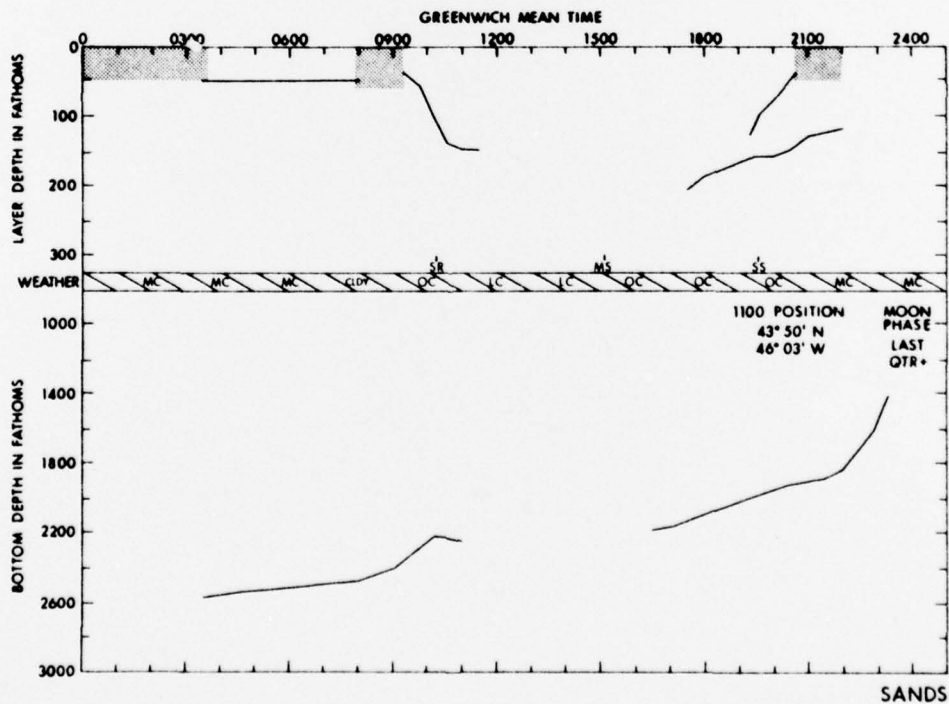
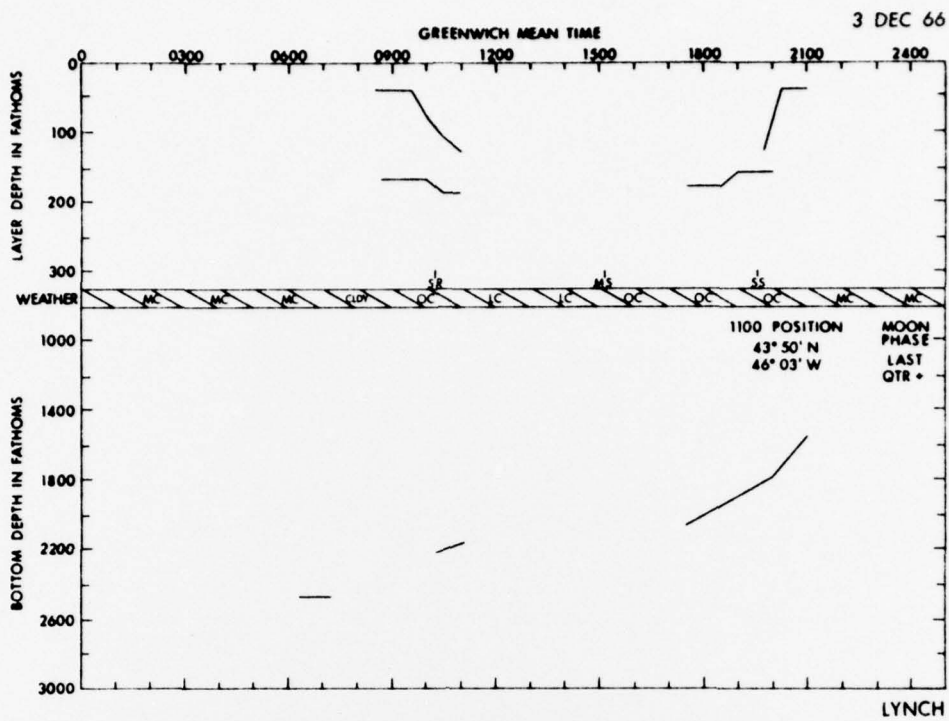


Fig. 31 - Daily Observations

USL Tech Memo No. 2211-106-67

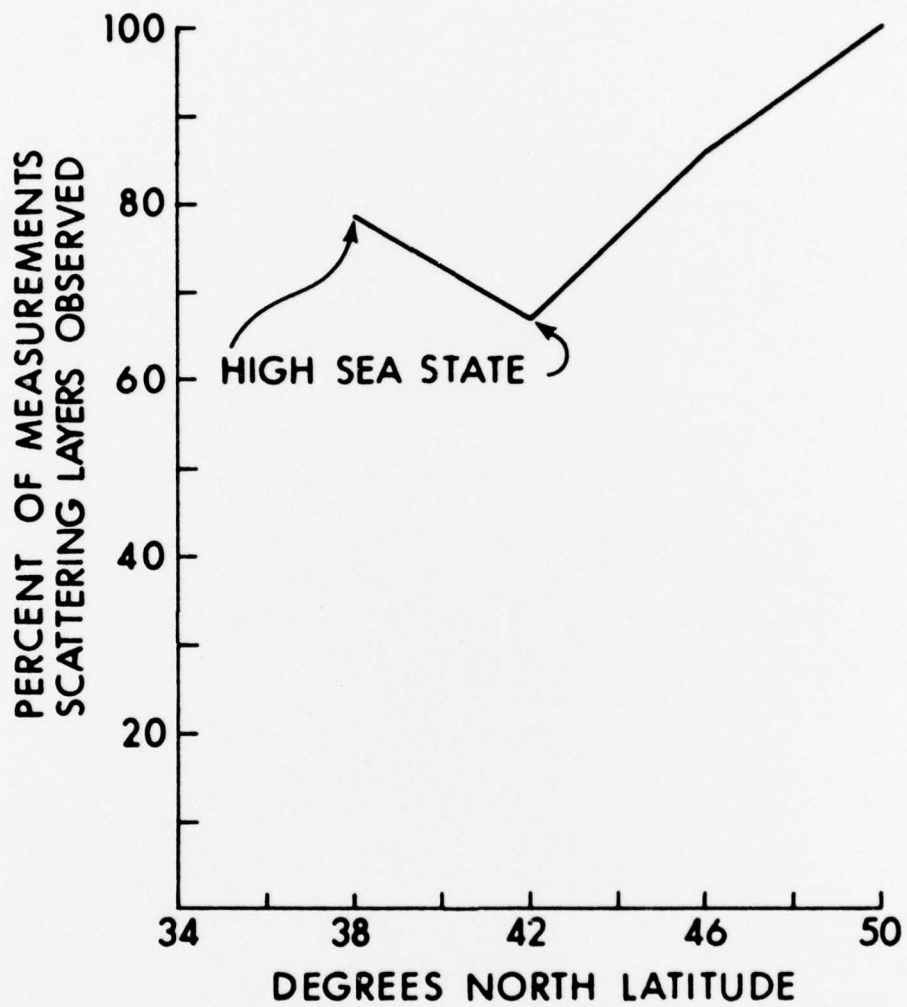


Fig. 32 - Percent of Scattering Layer Occurrence VS Latitude

USL Tech Memo No. 2211-106-67

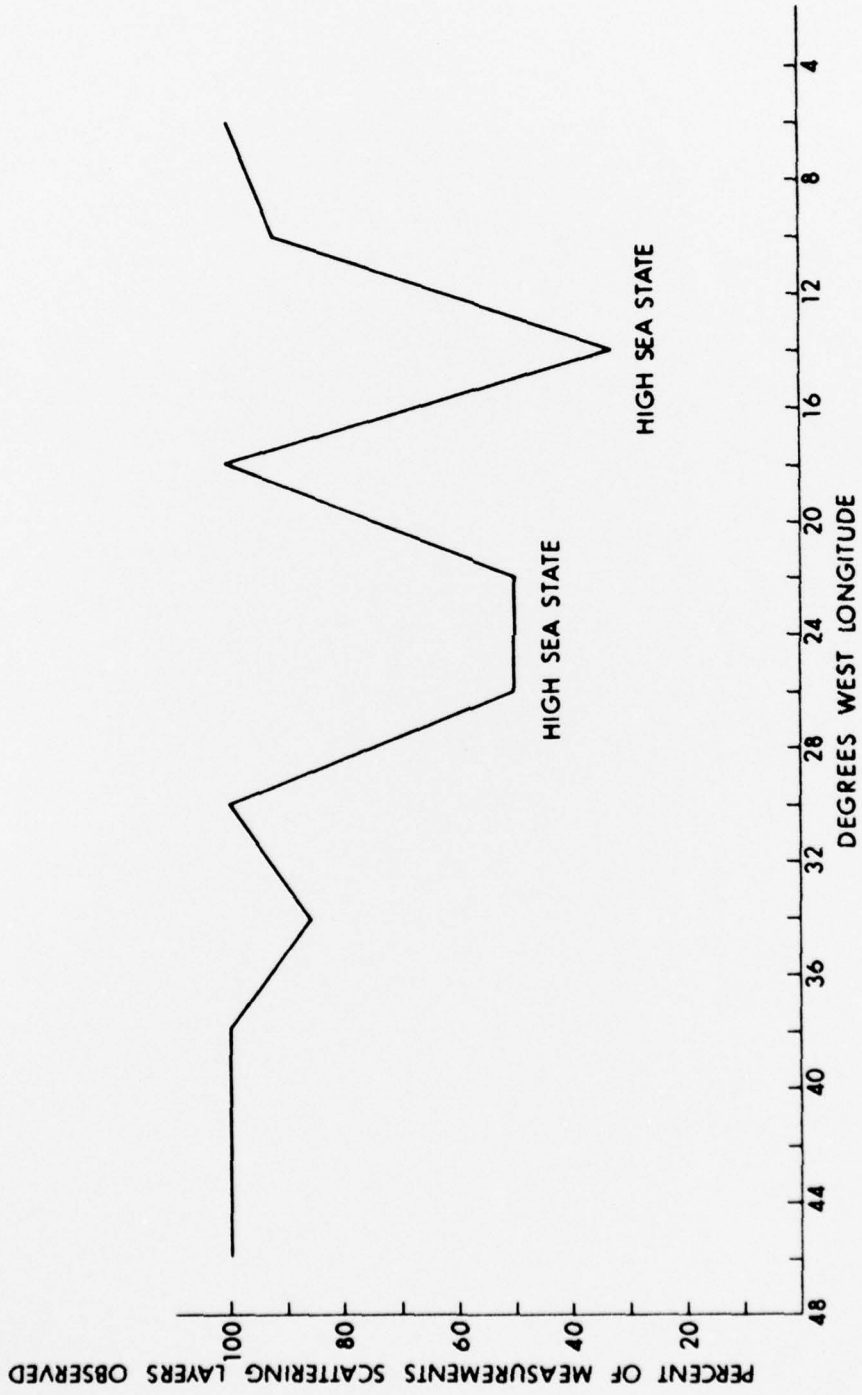


Fig. 33 - Percent of Scattering Layer Occurrence VS Longitude

USL Tech Memo No. 2211-106-67

U. S. Navy Underwater Sound Laboratory
 NP24 - 31567 - 10 - 67

Official Photograph

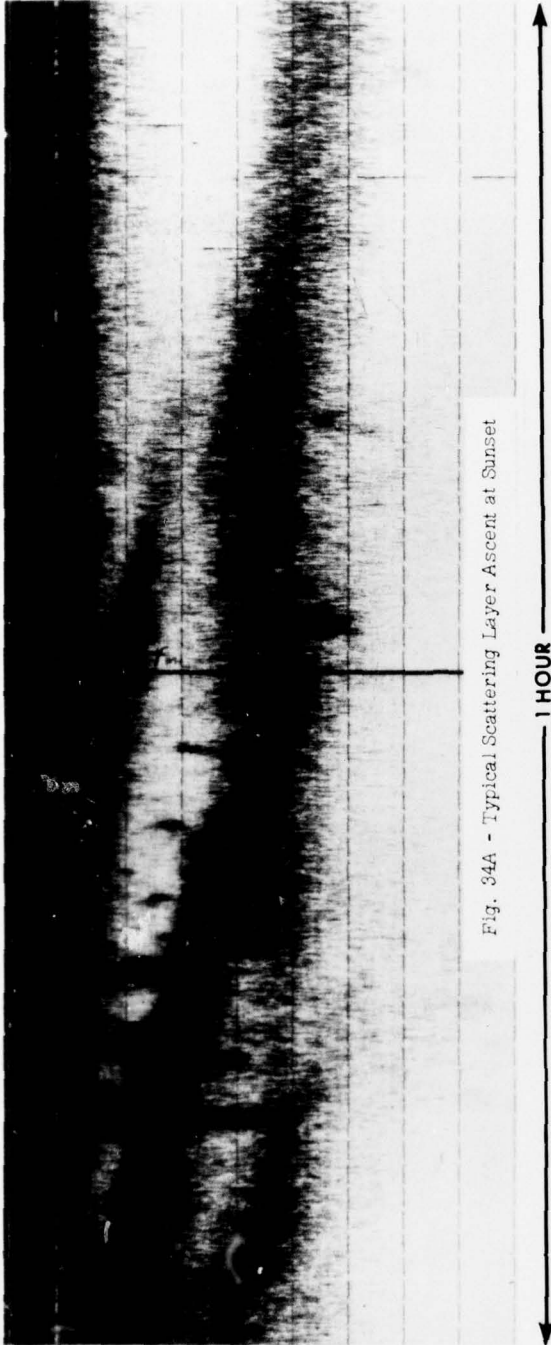


Fig. 34A - Typical Scattering Layer Ascent at Sunset

1 HOUR

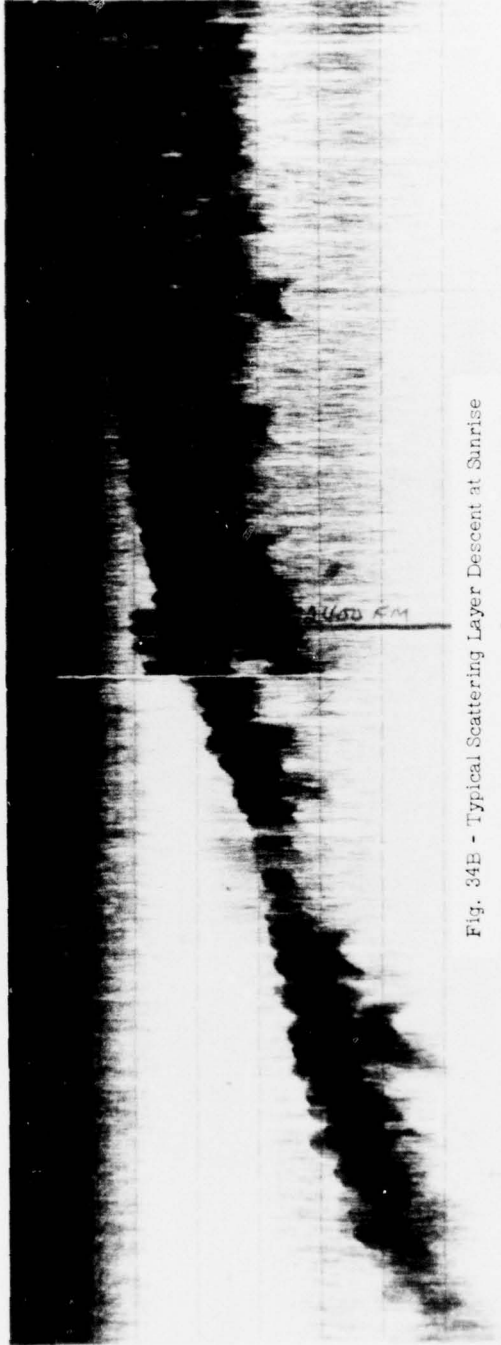


Fig. 34B - Typical Scattering Layer Descent at Sunrise

← TIME

Official Photograph

U. S. Navy Underwater Sound Laboratory

NP24 - 31709 - 10 - 67