



[TASM] -15.61026 166.90339

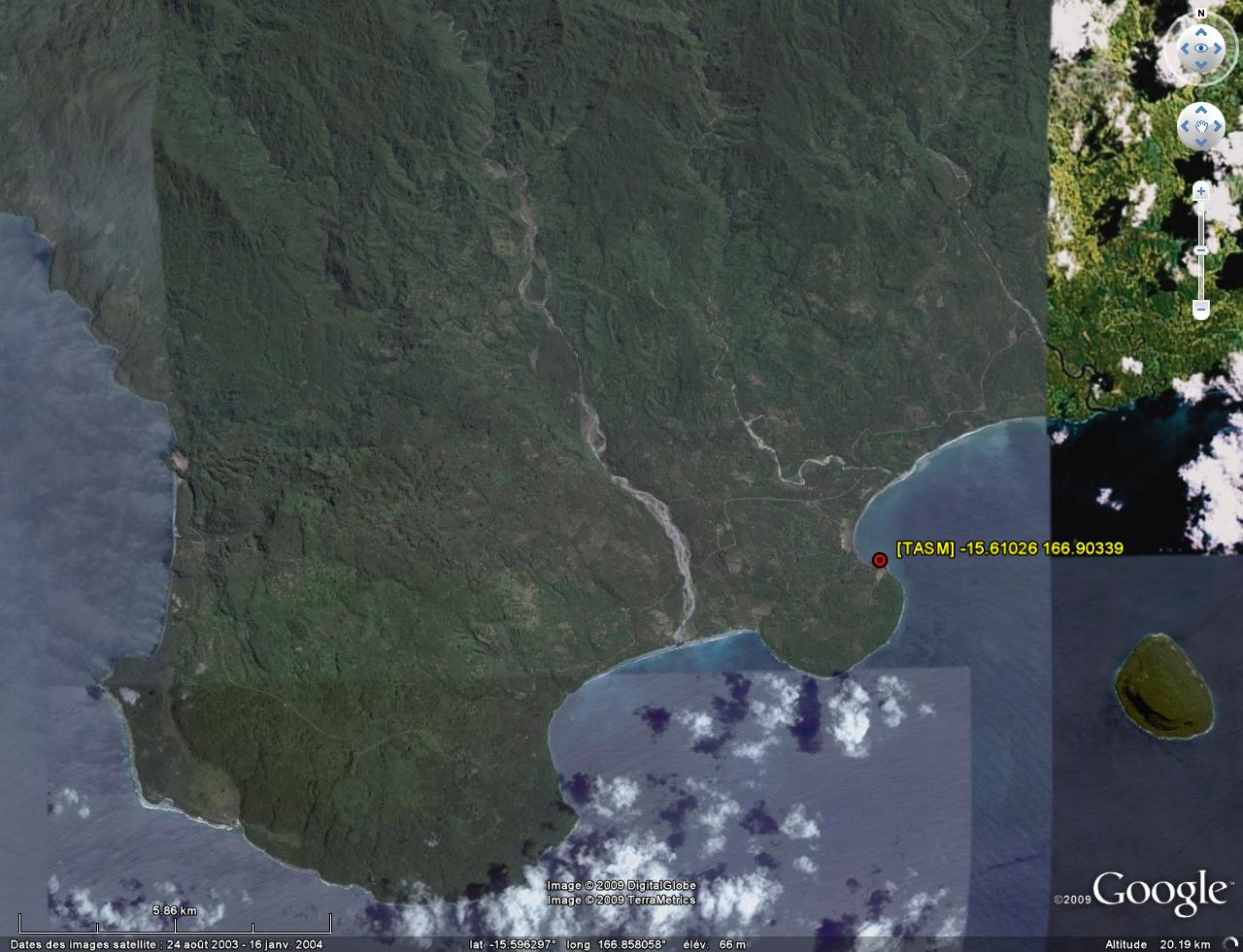
42 km

Image © 2009 DigitalGlobe
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2009 TerraMetrics

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lat -15.188791° long 166.950732° élév. 54 m

Altitude 140.45 km



[TASM] -15.61026 166.90339

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5.86 km

Dates des images satellite : 24 août 2003 - 16 janv. 2004

lat -15.596297° long 166.858058° élév. 66 m

Altitude 20.19 km



[TASM] -15.61026 166.90339

Image © 2009 DigitalGlobe

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1148 m

Date des images satellite : 12 sept. 2003

lat -15.617271° long 166.896159° élév. 53 m

Altitude 4.10 km

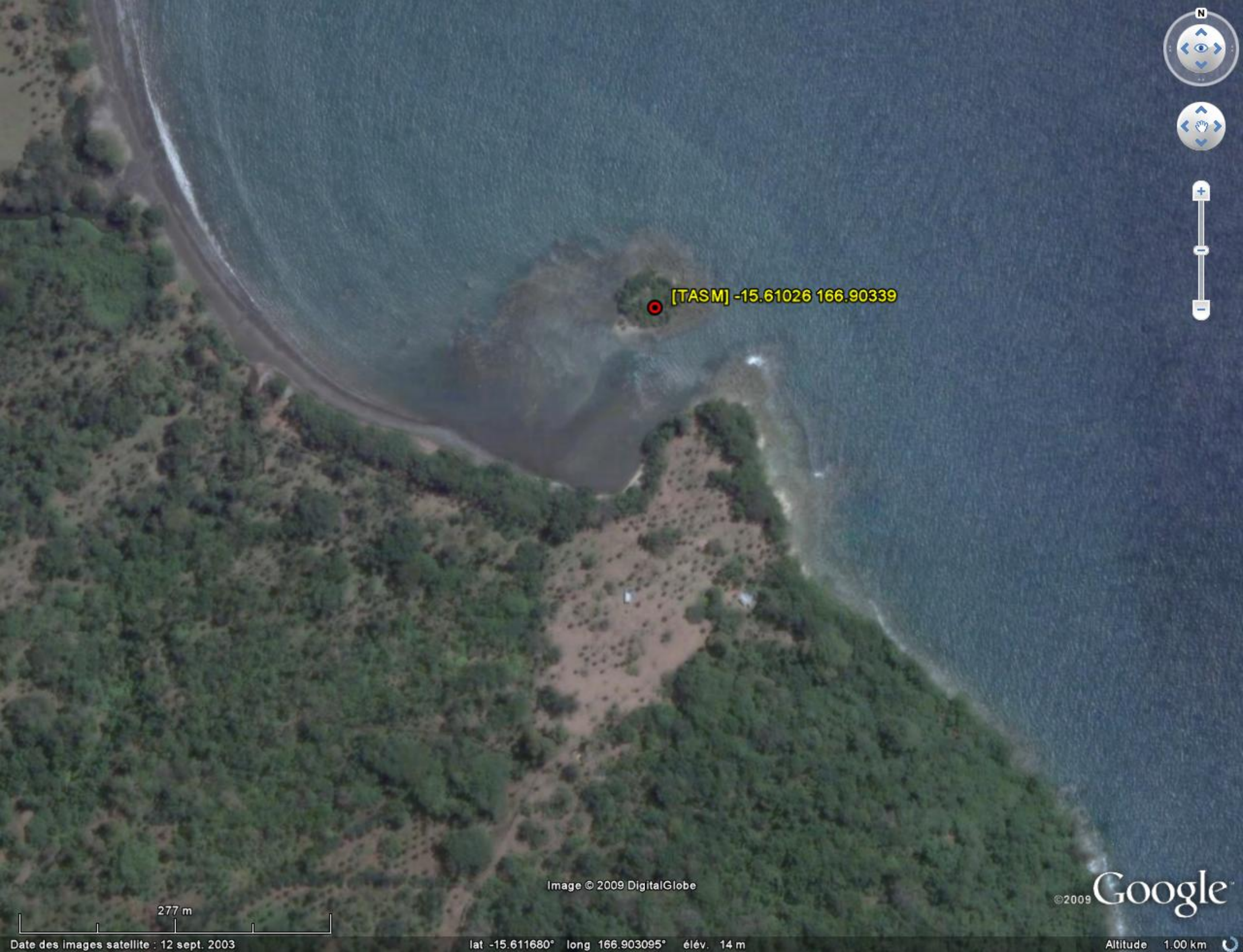


Image © 2009 DigitalGlobe

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277 m

Date des images satellite : 12 sept. 2003

lat -15.611680° long 166.903095° élév. 14 m

Altitude 1.00 km

TASMALUM SANTO VANUATU

Acronyme:TASM

Lat: 15°36 S	Latitude: -15.61026
	Longitude: 166.90339
Lon: 166°54 E	Hauteur: 68.93 m

H: 69 M

Tasmalum est situe au sud ouest de LUGANVILLE a 50 kms
Le point est sur un petit ilot situe entre l ecole francaise
et l ancienne plantation de Mr FRED STEEVENS.
On s y rend en pirogue ou en canot.on peut traverser a maree basse.
Prevenir le SURVEY DEPT au Tel:36330.
Passer un messaga radio a la famille TAVULANTOUILLE FRANCOIS RAYMOND
ALAIN,REMY de votre mission de faire nettoyer le site d avance.
Main d oeuvre 500vt jour.
On peut se loger a l ecole ou au village de PAKATAORA.
ELECTRICITE a l ecole Francaise
Il y a un dispensaire.
Une petite cooperative au village.
Les gens sont tres accueillants.

UNAVCO

GPS Site Description Log

PROJECT NAME

version 2.0 May, 1991

University Navstar Consortium

Organization's Name

This report should be completed in DETAIL to provide uniformity in data essential to station occupation and GPS experiment planning. It also aids in station recovery and reoccupation. Please provide the requested information.

Station Name: TASMALUM 4-Char ID: TASM Station ID #: _____
 Location: SOUTH WEST SANTO City: _____ Country: VANUATU
 Site Address (if applicable): _____
 Reported By: ERIC KENDRICK Agency: NC SU Tel#: (919) 515-7917

Approximate Geodetic Coordinates GPS Mark Inscription: NO INSCRIPTION ON STAINLESS STEEL PIN
 Latitude: 15° 36' 36.9" S Datum: WGS-84 Current Magnetic Declination: 12° E
 Longitude: 166° 54' 12.2" E Source of Position: 4000 SST MEAN 3-D Rate & Direction of Change: + 4'
 Height: N 75 M Source of Declination: UNAVCO

Topographic Map or Aerial Photo Showing Location: SANTO - SUD Time offset from UTC
 Name: I. ESPIRITU SANTO Scale: 1:100,000 Standard: + 11 Daylight
 Agency: INSTITUT GEOGRAPHIQUE NATIONAL Date Compiled: 1979 No seasonal time changes observed ☐

Information Included in this report (Check all that apply)

- ☒ How to Reach the Station & Site Description
☒ Site Vicinity Sketch
☐ Local Map Showing Site Location
☐ Ancillary Information Form
☒ Horizon Mask Diagram

- ☐ Site Survey & Information /Results
☐ Photos of all Marks (Label Photos)
☐ Photos of Station from Reference Points
☐ Photos of Landmarks from Station
☐ Other (Specify)

Site Ownership/Permission

Who owns the site? FRED STEVENS USED TO OWN IT, BUT SINCE THE REVOLUTION, OWNERSHIP IS IN DISPUTE.
 Primary Site Contact: MIKE SHARP
 Title: SURVEY ADVISOR
 Address: SURVEY DEPT.

City, State, Zip: PORT VILA
 Country: VANUATU GEOLOGY
 Tel#: (678) 22427 Fax: VIA DEPT. OF MINES, & RWS
678 22213

Explain procedure required to obtain permission to occupy this particular site:

CALL MIKE SHARP, OR FRANCIS BODJOUX OF ORSTOM (PHONE (678) 22268, FAX (678) 22276), & THEY'LL

GET CHARLES PAK-A IN THE SANTO SURVEY OFFICE TO ARRANGE IT. OR SIMPLY CALL CHARLES AT THE OR ALBERT BUE AT THE SANTO OFFICE. ALBERT SPEAKS GOOD ENGLISH CHARLES SPEAKS IT & UNDERSTANDS IT WELL ENOUGH.

Existing Geodetic Ties

Is this part of an existing Geodetic Network? ☐ Yes ☐ No ☒ Unsure
 If yes, what type of network is it? ☐ Horizontal ☐ Vertical ☐ 3-D
 What agency is responsible for the network? _____
 What is the accuracy classification of this network? _____
 What other space geodetic systems use this site? ☐ Fixed VLBI ☐ Mobile VLBI ☐ SLR
☐ None ☐ Unsure
 What agency is responsible for the other system's operation? _____
 Has a survey tie been made to the GPS station? ☐ Yes ☐ No
 Comments: _____

Station: T A S MDate: 9 AUG 92

PROJECT NAME

Summary of On-Site Geodetic				See Code Below Add Comments if Needed			
Agency	Inscription	Approx. Location from Station Dist (m) Azimuth		Mark Type	Condition	Mark Setting	Soil Type
UNAVCO	SS PIN NO INSCRIPTION STATION TASM	—	—	SS PIN	S, U	C	R (CORAL)
UNAVCO	SS PIN NO INSCRIPTION	9 M	TRUE 293°	SS PIN	S, U	C	R (CORAL)
UNAVCO	SS PIN NO INSCRIPTION	20 M	TRUE 208°	SS PIN	S, U	C	R (CORAL)
UNAVCO	SS PIN NO INSCRIPTION	12 M	TRUE 93°	SS PIN	S, U	C	R (CORAL)
DEPT. OF OVERSEAS SURVEYS	ESZ 57 DOS 1966	16 M	TRUE 33°	O	N	P	

Mark Type (include all that Apply)

J = JPL Rod and Cap

R = Steel Rod Only

B = Brass Cap

P = Other Cap

M = Magnetic Material in Point

O = Other (Specify)

Condition: (include all that apply)

S = Mark solid in soil

L = Loose in soil

M = Mark is marked

U = Mark is Un-marred

C = Center point is unreadable

N = Center point not well defined

O = Other (please specify)

Mark Setting: (include all that apply)

P = In poured concrete form or post F = set flush with ground

D = In concrete in depression in rock B = Set below ground

C = Cemented into drillhole in rock A = Set above ground

M = Mounted on mast or pier (Specify)

S = In concrete structure, i.e. foundation (specify)

O = Other (specify)

Soil Type:

A = Alluvium/Soil

B = Boulder

C = Compact Sedl.

R = Rock outcrop

U = Bedrock under soil

O = Other (Specify)

Comments where necessary on: Mark type, condition, stability and setting. Soil type and condition. Geological setting and any factors that may affect the stability of the mark. (i.e. land slides or erosion). If constructing a monument describe what is underground and construction details. Use sketches and attach additional sheets if necessary.

THE STATION IS A SS PIN CEMENTED INTO A HARD HEAD OF CORAL ~ 1.5M x 1.5M WHICH IS ~ THE SAME HEIGHT AS THE SURROUNDING GROUND. THE PIN IS IN FINE SHAPE & IT AND THE CORAL HEAD APPEAR VERY STABLE.

THE SS PIN AT 208° IS IN A CORAL HEAD ~ 2M x 1.5M, AND ABOUT 0.7M HIGH. THIS CORAL HEAD IS VERY PROMINENT (NOT ANOTHER ONE NEAR IT) AND IS SOFTER & MORE POROUS THAN THE CORAL AT THE STATION. PIN IS IN GOOD SHAPE & STABLE, BUT THE CORAL IS LESS DURABLE THAN AT THE STATION.

THE SS PIN AT 93° IS IN A CORAL HEAD ~ 1.5M x 1.5M AND ~ 0.3M ABOVE THE SURROUNDING GROUND. THE PIN ~~AND THE~~ IS IN GOOD SHAPE & THE CORAL LOOKS STABLE.

THE SS PIN AT 293° IS IN THE TOP OF A CORAL HEAD ~ 1M x 1M WIDE, BUT NOT VERY PROMINENT. IT IS LOCATED ~ 1M FROM A CORAL HEAD ~ 1M HIGH, WHICH IS IN A DIRECTION TOWARD THE STATION. THE PIN IS IN GOOD SHAPE.

THE MARK AT 33° IS A CONCRETE POST ~ .7M HIGH. THE INSCRIPTION ^{WAS} SCRATCHED INTO THE TOP OF THE POST WHEN IT WAS PAURED. THERE IS NO BRASS DISK, BUT THERE IS A SMALL STEEL TUBE PROTRUDING A FEW COUPLE OF CM FROM THE TOP OF THE POST.

Site Survey

Has a survey been performed to determine the relative,

3-D locations of the station and reference marks? ☐ Yes ☒ No ☐ Unsure

If yes, what type of survey was it? ☐ GPS ☐ Conventional

What is the expected/achieved accuracy of the survey? ☐ Date of Survey: ☐

Which agency performed the survey? ☐

Who has the original field notes or data? ☐

Who performed the data reduction and adjustment? ☐

Comments on the site survey: CHARLES PEXAKOA, HEAD SURVEYOR IN THE SANTO OFFICE SAYS

HE IS GOING TO SURVEY THE REFERENCE MARKS A COUPLE OF WEEKS AFTER THE WE

LEAVE.

Attach all available survey information to this report

Station: TASMDate: 9 AUG 92

PROJECT NAME

Site Access: What type of transportation is needed to gain access to the site (boat, 4WD, 2WD, inaccessible by vehicle, ect)? Please comment on the effort required to reach the site (long hike, assistance needed to carry gear, pack mule). If assistance is needed make recommendations. THE SITE IS ABOUT AN HOUR'S DRIVE FROM LUGANVILLE. 4WD IS NECESSARY, AS THERE IS DEEP MUD NEAR THE KILOMETER BETWEEN THE MAIN ROAD AND THE BEACH NEAR THE SITE. AT LOW TIDE YOU CAN DRIVE A VEHICLE TO THE LITTLE ISLAND WHERE THE STATION IS. AT HIGH TIDE, THE WATER IS ~ CHEST DEEP IN SPOTS, ~ 100M WIDE AT THE SHALLOWEST PATH. THERE ARE 3 RIVER CROSSINGS ON THE MAIN ROAD THAT MIGHT BE IMPASSABLE WHEN THE RIVERS ARE HIGH AFTER A GOOD RAIN, OTHERWISE THE MAIN ROAD IS IN GOOD SHAPE. IT'S GOOD TO BRING EXTRA PEOPLE ALONG IN THE BACK OF THE TRUCK SO THEY CAN HELP PUSH THE TRUCK WHEN IT GETS STUCK IN THE MUD.

attach additional sheet if necessary

On-Site Facilities: Discuss any on-site facilities available to support GPS operations. Can the receiver be placed in a building? Is the building safe? How far is the building from the station? Is office or storage space available?

THERE IS NOTHING ON THE ISLAND WHERE THE SITE IS, EXCEPT FOR A COUPLE OF COCONUT TREES, ^{THOSE} WHICH ARE GOOD TO DRINK OR EAT IF YOU HAVE A MACHETE TO OPEN THEM. THERE IS NO POTABLE WATER AT THE HOUSE A FEW HUNDRED METERS FROM THE SITE. THE SPIRIT IS OUTSIDE. YOU MIGHT BE ABLE TO SLEEP THERE TOO. A FRIEND OF THE FAMILY THAT OWNS THE PROPERTY WAS STAYING THERE WHILE I WAS THERE, & HE SAID I COULD SLEEP & COOK THERE WHENEVER I WANTED.

attach additional sheet if necessary

Power:

Is AC power available on-site?.....

Voltage 230 V. Frequency _____ Hz. Distance from power source to receiver: ☐ Yes ☒ No Meters

Comment on stability and reliability: THERE'S ELECTRICITY 24 HRS A DAY IN LUGANVILLE.

Discuss any special equipment that may be required, describe outlets (sketch if needed) and state any costs if required.

THERE IS A GENERATOR AT THE VILLAGE OF UKORD ~ 4KM FROM THE SITE. IT RARELY RUNS HOWEVER BECAUSE IT'S OFTEN BROKEN, OR THE VILLAGERS HAVE NO MONEY TO PAY FOR THE FUEL. IT NEVER RAN DURING MY 10 DAY STAY, OTHERWISE, CLOSEST ELECTRICITY IS LUGANVILLE.

Batteries:

Where can batteries be purchased (try and include several options, comment on type and costs)?

WE BORROWED BATTERIES FROM THE PUBLIC WORKS DEPT, THE LOCAL SURVEY OFFICE, THE IRHD COCONUT RESEARCH STATION, AND KEVIN HENDERSON AT HENDERSON ENGINEERING COMPANY. 3 OF THE CAR BATTERIES WE BORROWED WERE BRAND NEW, AND DIDN'T WORK. DON'T ASSUME A BATTERY WILL WORK JUST BECAUSE IT'S NEW! ALSO, 2 OLD BATTERIES WE BORROWED DIDN'T WORK. MAKE SURE THEY WORK BEFORE HEADING TO THE FIELD. LET CHARLES PAKOA AT SURVEY OFFICE BORROW BATTERIES A WEEK OR MORE BEFORE YOU ARRIVE, SO HE CAN MAKE SURE THEY WORK.

Where can batteries be charged (try and include several options, and indicate best option)? YOU CAN GET BATTERIES CHARGED AT THE PLACES MENTIONED ABOVE, BUT AT IRHD, THEY TURN THE GENERATOR OFF FROM ~ 11:30 PM TO 7:00 AM.

Is a generator or solar panels needed at this site?..... ☒ Yes ☐ No

Any comments? YOU CAN BRING A GENERATOR AT LOW TIDE BUT YOU SHOULD BRING A TARP TO KEEP IT OUT OF THE RAIN.

Station: TASMDate: 9 AUG 92

PROJECT NAME

Equipment Recommendations: List ancillary equipment that may be useful at this site (antenna cable length, tent, etc.)

BRING A GENERATOR! SURVEY OFFICE HAS ONE, & WE RENTED ANOTHER ONE FROM THE STORE RIGHT BESIDE THE SURVEY OFFICE FOR N/10 U.S. A DAY.

SOLAR PANELS AREN'T ENOUGH WHEN IT'S RAINY & CLOUDY, & THE SUN ONLY CAME OUT ~ 5 HOURS DURING THE 9 DAYS I WAS THERE.

BRING A TARP TO COVER THE GENERATOR, AND ONE TO PUT UNDER THE TENT → THE CORAL IS SHARP. BRING SOMETHING SOFT TO SLEEP ON → CORAL IS HARD.

A MACHETE IS GOOD FOR CLEARING TREES & SHRUBS, & FOR OPENING COCONUTS.

A TRUCK BATTERY OR 2 WOULD BE ANOTHER GOOD IDEA SINCE YOU CAN DRIVE SO CLOSE TO THE STATION.

attach additional sheet if necessary

Communications: What modes of communications are available at or near the site (telephone, fax, telex, radio, mail, indicate locations)? State the best mode of communication. Make recommendations and give instructions. Supply all relevant numbers or radio frequencies. Access quality, operating hours, frequency of delivery.

THERE'S NO PHONE OR RADIO ANYWHERE NEAR THE SITE. A RADIO WOULD HAVE BEEN EXTREMELY HELPFUL TO SAVE UNNECESSARY TRIPS FROM LUCANVILLE TO THE SITE TO CHECK ON THINGS. IT'S ONLY 30KM FROM LUCANVILLE TO THE SITE, SO A COUPLE OF MOBILE VHF TRANSCEIVERS ~ 20-40 WATTS WOULD PROBABLY WORK FINE.

attach additional sheet if necessary

Adverse Conditions: Discuss any conditions that could adversely affect operations. Include things like potential sources of multipath, radio frequency interference, cultural or political sensitivities, adverse weather conditions, etc.

WE OBSERVED IN THE DRY SEASON, AND IT WAS CLOUDY & RAINY 10 OF THE 12 DAYS I WAS ON SANTO. THIS CAUSED THE RIVERS TO RUN HIGH & MAKE TRANSPORTATION CHANCY, & CREATED LOTS OF MUD, MAKING EVEN LAND ACCESS DIFFICULT. THE WEATHER ALSO INTERFERED WITH OPERATION OF THE SOLAR PANELS.

OWNERSHIP OF THE PROPERTY IS IN DISPUTE, SO DON'T SAY ANYTHING TO EITHER SIDE (THE STEVENS FAMILY OR THE LOCAL VILLAGERS) ABOUT ~~THE MATTER~~ THAT MATTER.

attach additional sheet if necessary

Other Site Contacts: List all possible persons providing assistance at this site. Include all those visiting the site with you, other local contacts providing assistance, US embassy contacts etc. Indicate rolls and include institutions, mailing addresses, telephone and fax numbers, etc. (include yourself)

RALEIGH, N.C.

ERIC KENDRICK, OPERATOR (N.C.S.U.) BOX 8228 ~~JOHANN~~ N.C.S.U. 27695 (919) 515-7917

THERRY CHAUSSELET OPERATOR (N.C.S.U.)

MIKE BEVIS (P.I.) SAME PHONE & ADDRESS AS E. KENDRICK

CHARLES PARKER, HEAD SURVEYOR, SURVEY DEPT. LUCANVILLE, SANTO

ALBERT BUE, SURVEYOR, SURVEY DEPT. LUCANVILLE, SANTO

attach additional sheet if necessary

Station: TASMDate: 9 AUG 92

PROJECT NAME

Station Name: TASMALUM4-Char ID: TASM

Station ID #: _____

Location: SOUTHWEST SANTO

City: _____

Country: VANUATU

Site Address (if applicable): _____

Reported By: ERIC KENDRICKAgency: NCSUTel#: (919) 515-7917

Verbal Site Description: Describe how to reach the site from an identifiable location such as a city, town, major intersection or landmark. Include street names, distances and direction of travel. Verbally describe the site. Indicate relative locations of all monuments and the monument locations relative to landmarks. Describe each monument (what it is set in, what it is, inscription and condition).

STARTING AT THE BIG STEEL FRAME BRIDGE ON THE S.W. SIDE OF LAGANVILLE, TAKE THE COAST ROAD WEST. 27 KM FROM BRIDGE MAKE A RIGHT TURN ONTO ANOTHER DIRT ROAD. THIS IS JUST PAST SOME HUTS ON THE RIGHT SIDE OF THE ROAD, & 2.4 KM PAST THE NAVOTA FARM SIGN ON THE LEFT SIDE OF THE ROAD. 3.1 KM AFTER THE TURN, TURN LEFT, THERE'S A SMALL SHED ON THE RIGHT JUST BEFORE THIS TURN. YOU CROSS THE APSONE RIVER AFTER 3.0 KM, THE RIVER BED IS CONCRETE. AFTER 5.1 KM MORE, YOU CROSS A STREAM WITH A GRAVEL BED. AFTER 0.3 KM^{MORE} YOU CROSS A RIVER WITH A CONCRETE BED. AFTER 5.1 KM MORE, YOU CROSS THE WAILAPA RIVER WHICH HAS A CONCRETE BED. MAKE A LEFT TURN 1.2 KM PAST THIS RIVER. (THE TURN IS ABOUT 100 M BEFORE YOU WOULD COME TO THE 'PROTESTANT BAEBEL SCHOOL' ON THE LEFT, SO IF YOU SEE THAT SCHOOL YOU'VE GONE TOO FAR.) GO THRU THE GATE & FOLLOW THE TIRE TRACKS^{1 KM} THRU THE GRASS & THRU ANOTHER GATE OR 2 UNTIL YOU'RE BEHIND THE FRENCH SCHOOL. GO THRU THE GATES AND FOLLOW THE TIRE TRACKS DOWN THE HILL AND OUT TO THE BEACH THE BEST WAY YOU CAN. TURN RIGHT AT THE BEACH & DRIVE ABOUT A KILOMETER TO THE LITTLE ISLAND ~ 100 M OFFSHORE. AT HIGH TIDE IT'S DIFFICULT TO DRIVE ON THE BEACH. AT LOW TIDE YOU CAN DRIVE ALL THE WAY TO THE ISLAND.

THE STATION IS IN THE CENTER OF THE ISLAND. IF YOU'VE PARKED AT THE 2 PALM TREES ON THE SW SIDE OF THE ISLAND, FOLLOW THE PATH UP TO THE CENTER OF THE ISLAND. ALL OF THIS AREA HAS BEEN CLEARED OF THE SMALL TREES THAT WERE CUT DOWN 2 YEARS AGO. THE STATION IS IN A PIECE OF HARD CORAL ~ 1.3M X 1.3M, THAT DOESN'T STICK OUT OF THE GROUND VERY MUCH. THERE ARE 4 REFERENCE MARKS AT THE FOLLOWING APPROXIMATE DISTANCES & AZIMUTHS (~~TRUE~~^{TRUE}) FROM THE STATION:

SS PIN	9M	293°
SS PIN	20M	208°
SS PIN	12M	43°
CONCRETE POST	16M	33°

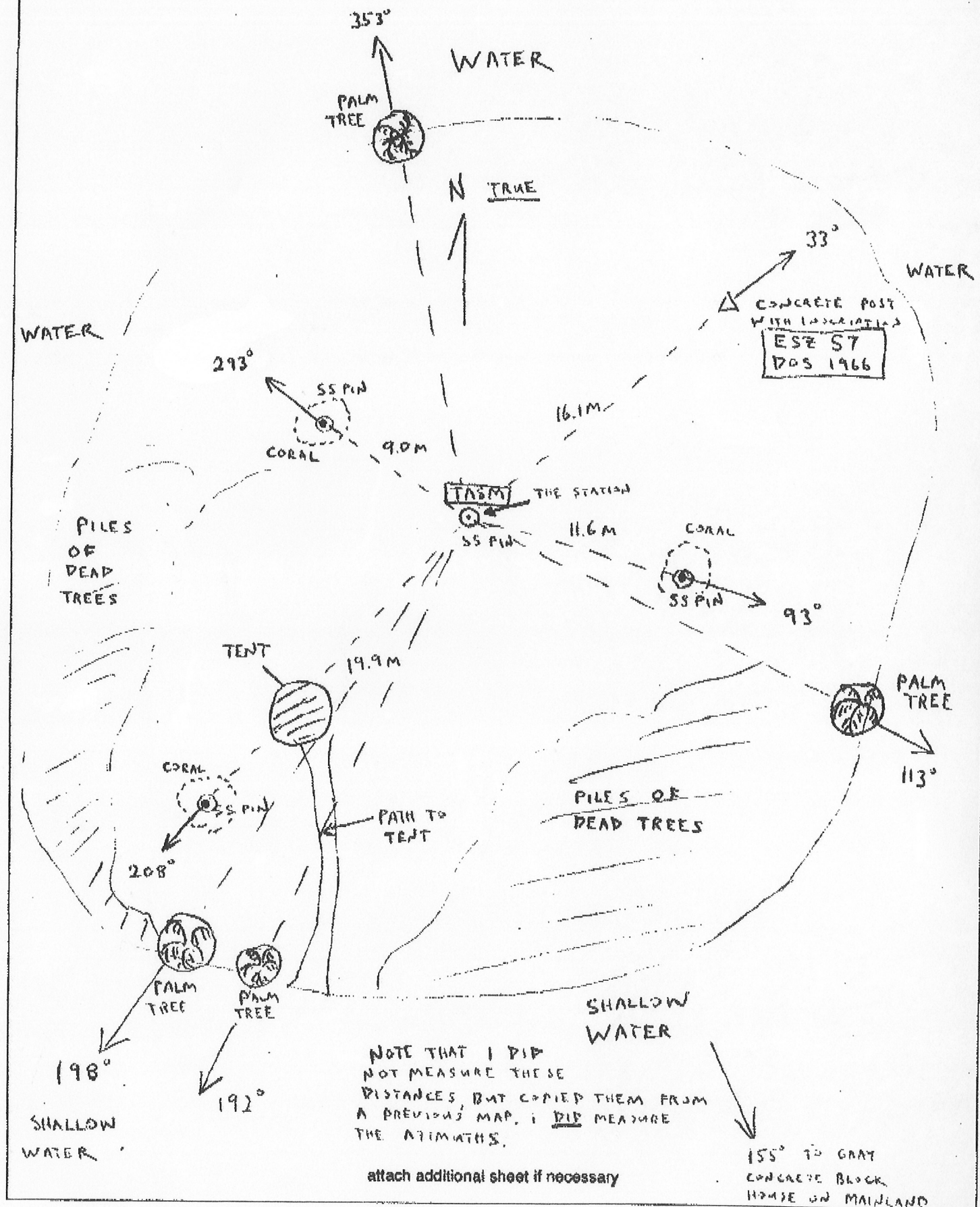
THERE ARE NO INSCRIPTIONS ON THE PINS, WHICH ARE ALL CEMENTED INTO CORAL, & WHICH ARE ALL IN GOOD SHAPE.

attach additional sheet if necessary

Station: TASMDate: 9 AUG 92

PROJECT NAME

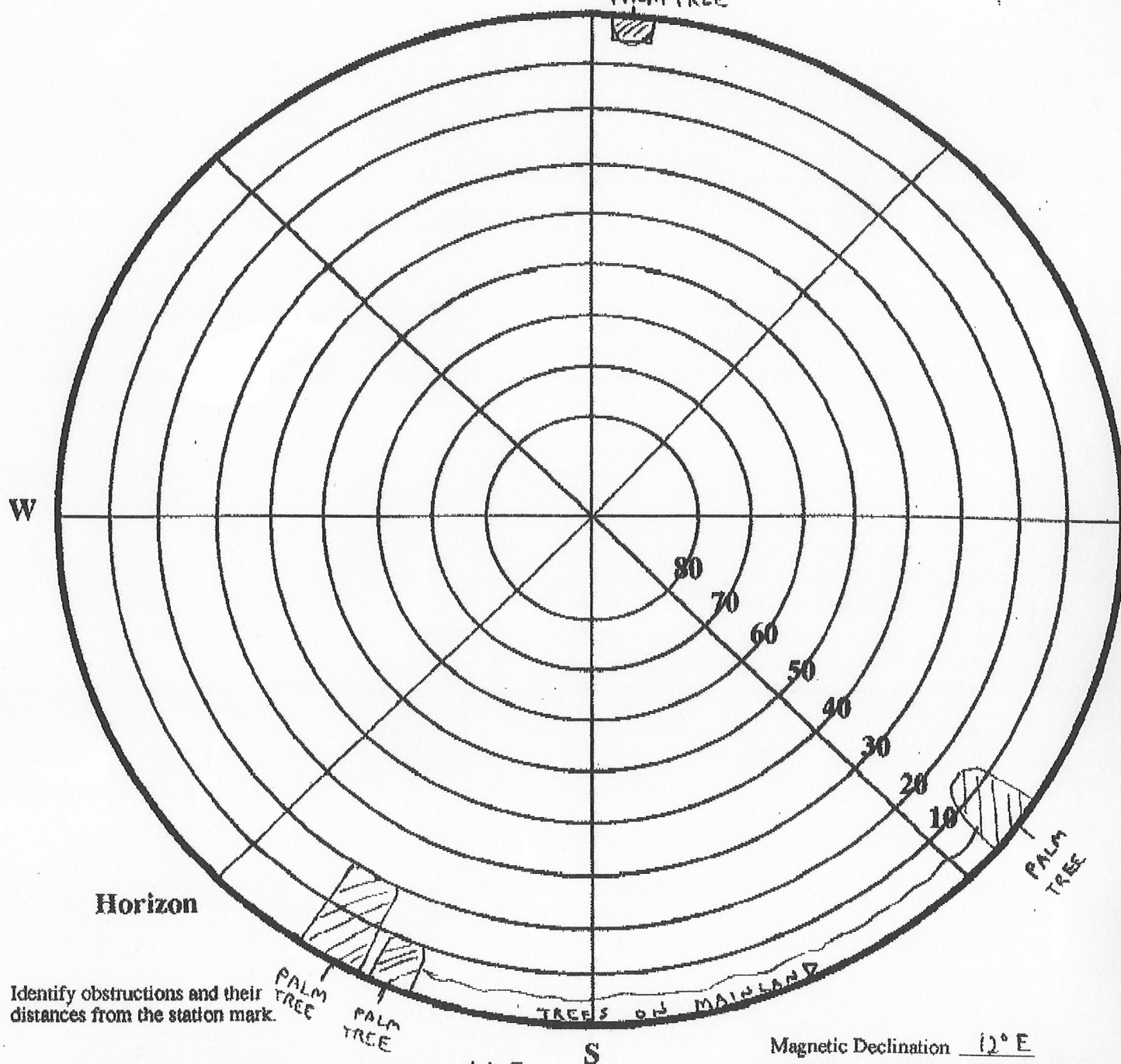
Site Sketch: Sketch the site vicinity. Show all features, landmarks and the relative locations of all markers. Include a North arrow and approximate scale. If no scale please indicate so. Try to use a straight edge if available.



Station: TASMALUMDate: 9 AUG 92

PROJECT NAME

GPS Station Horizon Mask

North MAGNETIC
PALM TREE

Identify obstructions and their distances from the station mark.

Height above marker that horizon was mapped from: 21.5Magnetic Declination 12° EDeclination applied to this figure? ☐ Yes☒ NoStation Name: TASMALUM4-Char ID: TASM

Station ID #:

Location: SOUTHWEST SANTO

City:

Country: VANUATU

Site Address (if applicable):

Reported By: ERIC KENDRICKAgency: NC SUTel#: (919) 515-7917

UNAVCO

GPS Station Description

University Navstar Consortium

UCAR, Boulder, CO., USA

Station Name: TASMALUM 4-Char ID: TASM Station ID #:
 Location: SOUTH WEST SANTO Country: VANUATU
 Observing Monument Inscription: NO INSCRIPTION ON SS PIN Project: SW Pacific 92

Approximate Geodetic Coordinates:

Latitude: 15° 36' 36.9" S Datum WGS - 84 Magnetic Declination 12° E
 Longitude: 166° 54' 12.2" E Source of Position MEAN 3-D TRIMBLE 4000 SST Rate & Direction of Change
 Height: N 75 m Source of Declination

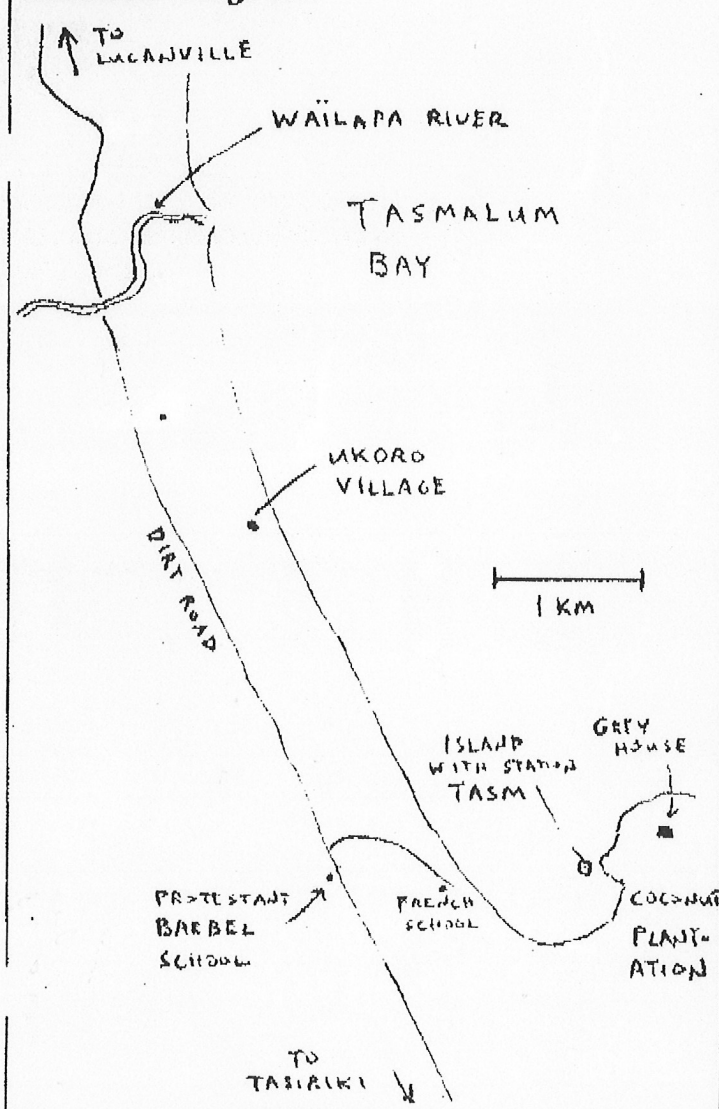
Site Personnel:

Name	Agency
<u>ERIC KENDRICK</u>	<u>NCSU</u>
<u>THIERRY CHAUSSALET</u>	<u>NCSU</u>
<u>CHARLES PAKOA</u>	<u>LANDS & SURVEY DEPT</u>

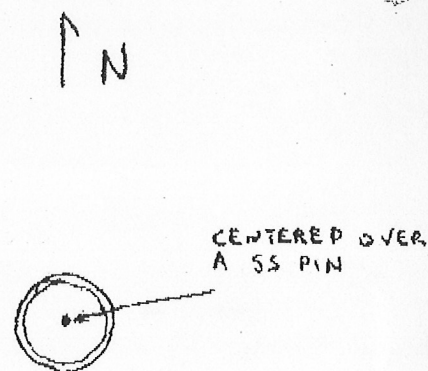
Access Notes:

YOU NEED 4WD DRIVE TO GET THROUGH THE MUD FROM THE TURNOFF TO THE FRENCH SCHOOL ALL THE WAY TO THE BEACH. YOU ALSO NEED HIGH CLEARANCE FOR 3 RIVER CROSSINGS. AT LOW TIDE YOU CAN DRIVE ALONG THE BEACH, AND OUT TO THE ISLAND WHERE THE STATION IS. OTHERWISE YOU HAVE TO CARRY EQUIPMENT 100M FROM BEACH TO ISLAND. WATER IS CHEST HIGH AT HIGH TIDE.

Location Diagram:

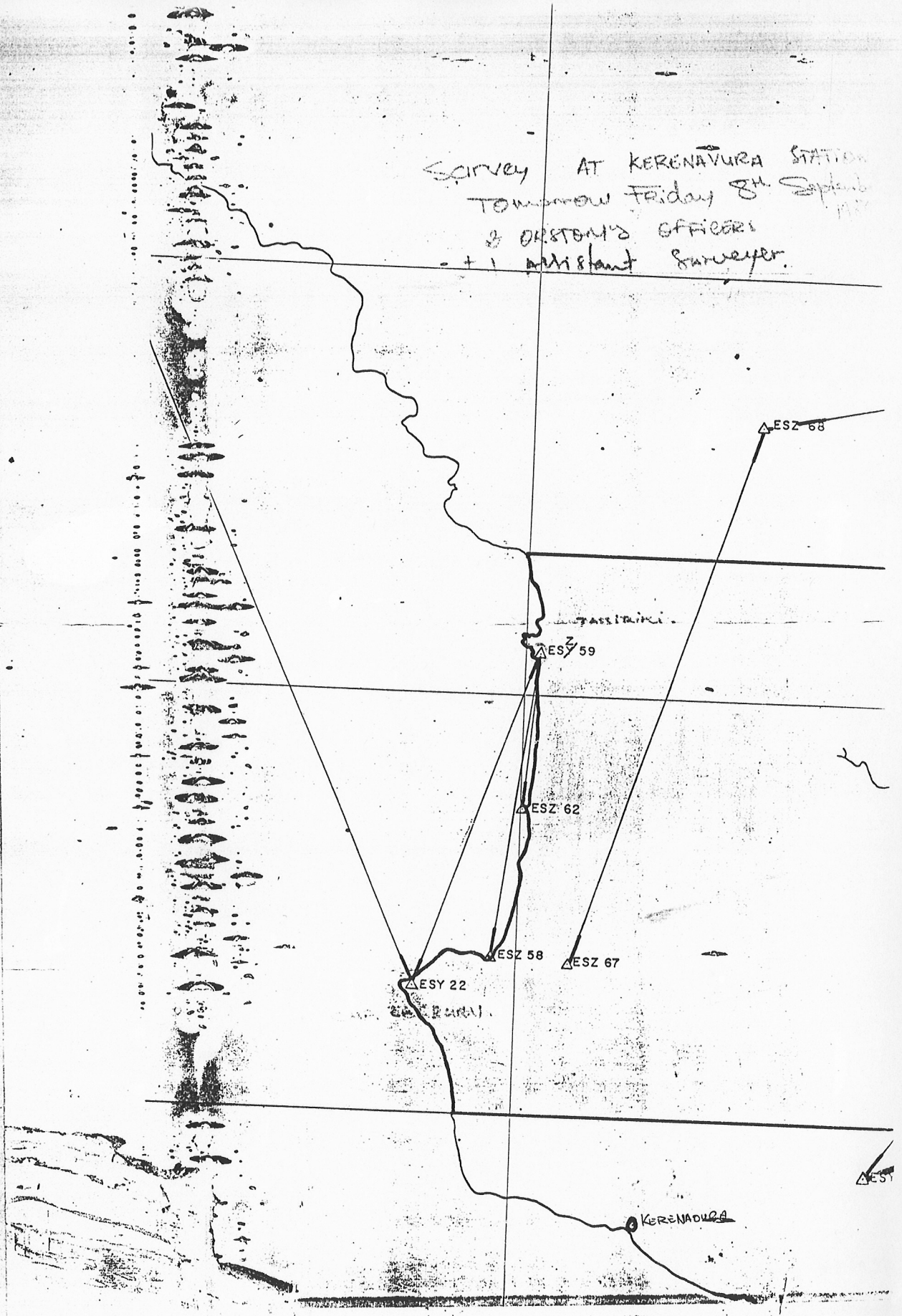


Rubbing or Photo of Monument: Indicate the exact point that the instrument was centered over and include a North arrow.



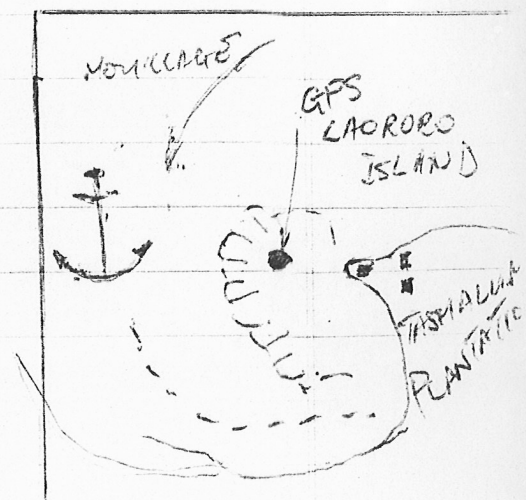
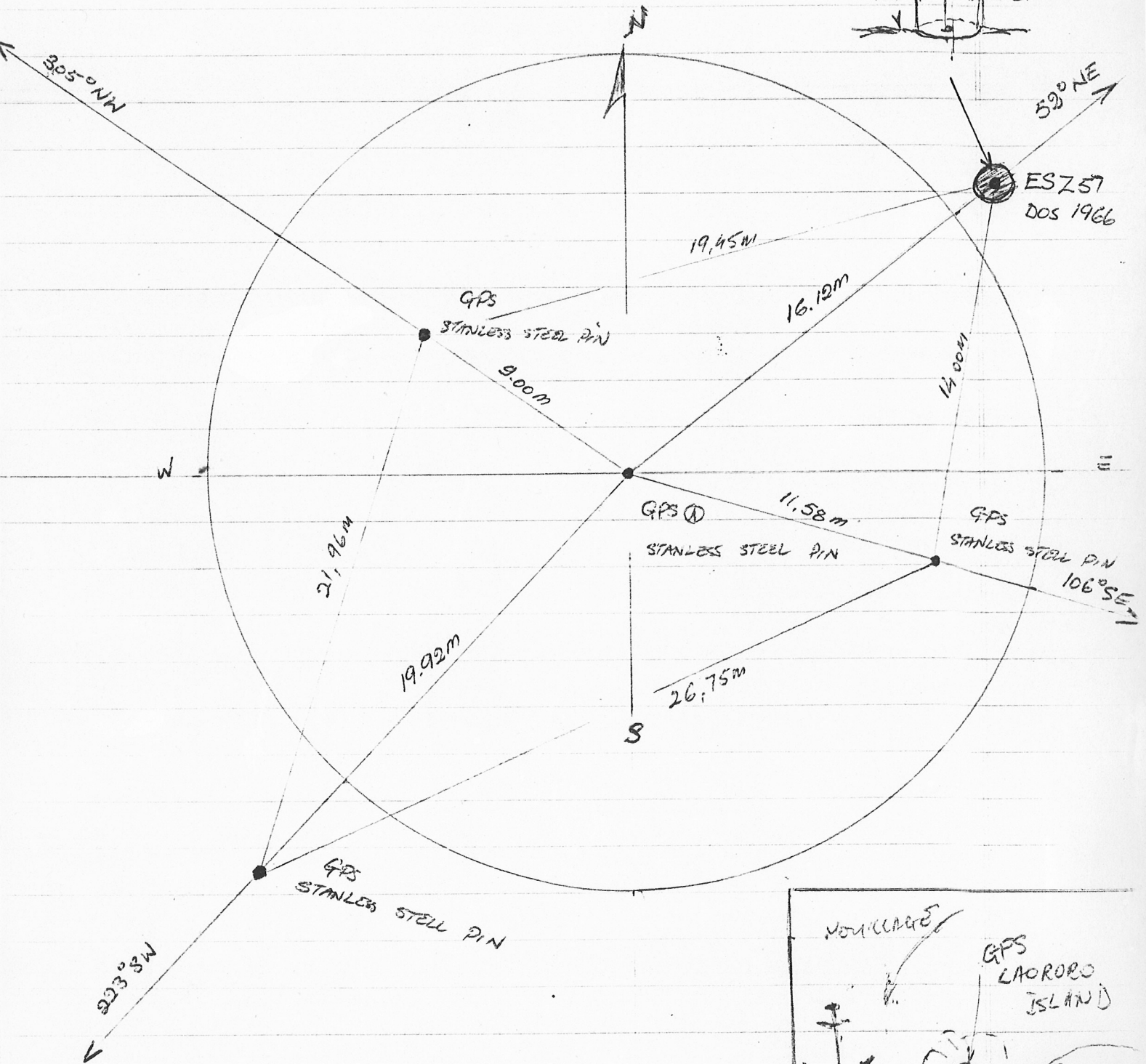
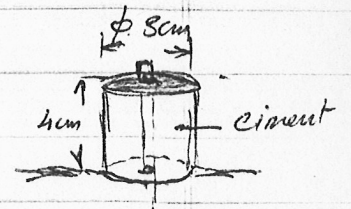
Station TASM UTC Start Date 30 JULY 92 UTC Start Day 212

Survey AT KERENAVURA STATION
Tomorrow Friday 8th Sept
3 DISTRICT OFFICERS
+ 1 Assistant Surveyor



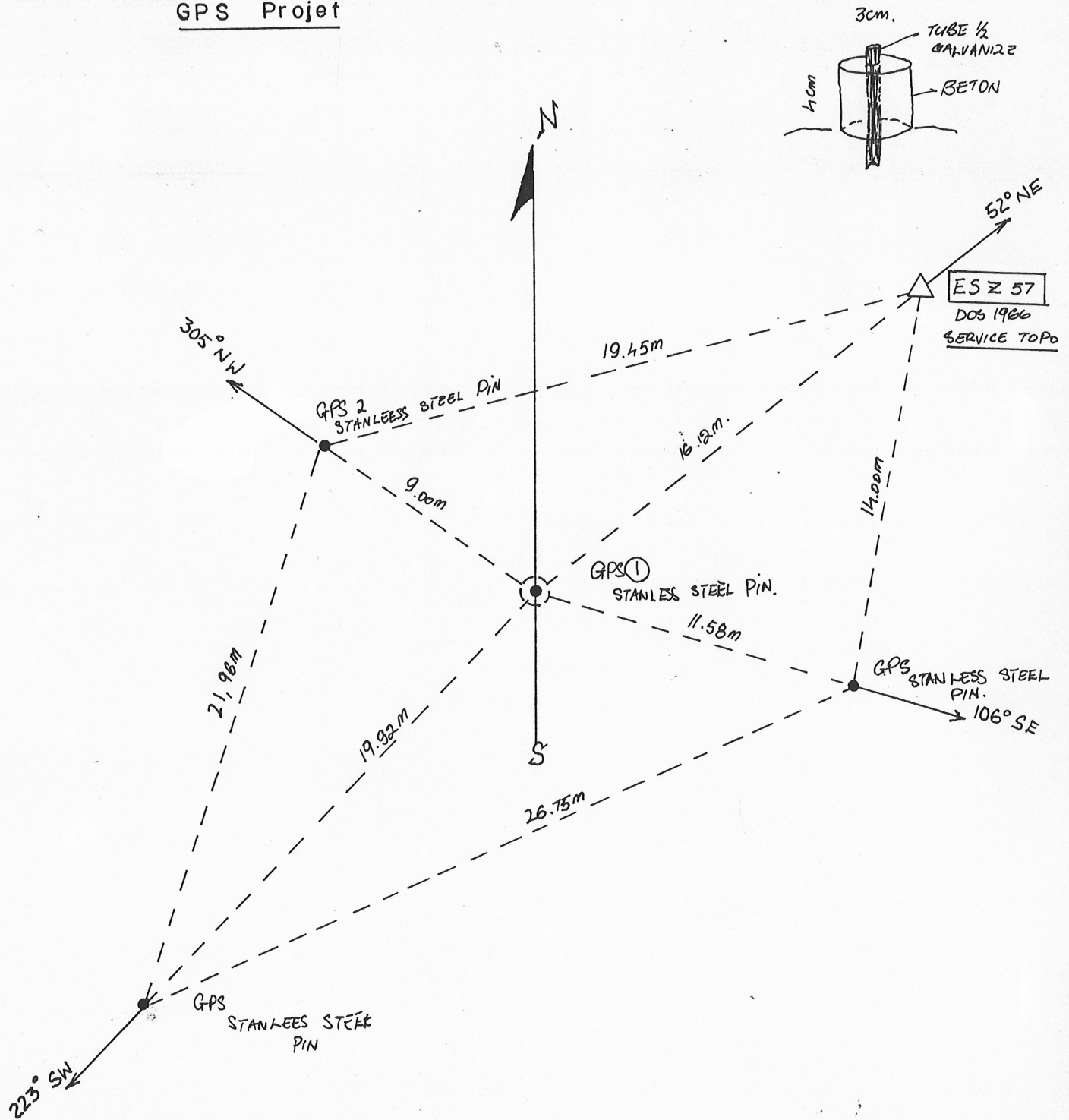
PETIT ILOT PLANTATION TASHIALUPI.

Proprietaire : FAVULANTUI
REMY & ALAIN.



TASMALUM

GPS Projct



GPS Projet

