Passage plan

Lisbon to Ponta Delgada
Content of passage plan

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Part A:

1. Objective of voyage

We will make a voyage of approximately 7 days on board of sailing vessel ‘Arthur’, departing from Cascais (Portugal) and arriving at Ponta Delgada (Azores). Our voyage is scheduled to start on Wednesday 13th July 2016.

The voyage is made as a recreational trip with on board 3 adults and 2 kids. This includes the 2 owners (husband and wife) and 1 crew (author of this passage plan). The skills on board range from Competent Crew to Yachtmaster.

The crew will sail out at circumstances forecasted over a period of several days of up to 5 BF, up to a moderate sea state and not with poor visibility. Along the route to the Azores, over the period of a week, the weather will change and the crew will have to adopt. This includes the choice of using the engine to maintain a minimum speed of 5 kn.

The moment of departure (and therefore arrival) is sufficiently flexible for the crew to allow for changes due to any possible unfavourable weather conditions.

At arrival, the owners will stay for several days with their boat in Ponta Delgada. The crew member will leave the boat after clearance.

I was requested by the owners of Arthur to co-skipper on this voyage, following earlier positive experience when crewing on the boat during a trip from The Netherlands to Spain. He will use this voyage as qualifying trip for his Yachtmaster Ocean CoC with position fixing on the basis of astronavigation.

2. Route

The route will start at the marina of Cascais (near Lisbon) and will end in the marina of Punta Delgada on the isle Sao Miquel (Azores). The distance from Cascais to Ponta Delgada is approximately 774 M.

Our estimated departure time (ETD) on Wednesday 13th July is 0900 UT (1000 local DST).
The standard time zone of mainland Portugal is UT. Add one hour for local DST.
The standard time zone of Azores is UT+1. Add one hour for local DST.

Based on an assumed average of 100 M per day, the voyage will take 7 to 8 days. However, we may decide to maintain the boat speed at minimum 5 kn, reducing the voyage to 6 days.

After leaving the marina of Cascais, we will stay south of the TSS system near the Portuguese coast. We will thereafter follow the great circle route westwards direction the Azores archipel, see gnomonic chart below.
Both Portugal main land and the Azores are buoyed according to IALA-A.

Magnetic variation is 2° 30’ W along coast of mainland Portugal, and 8° 30’W at Azores. Deviation of the ship’s compass is unknown but likely to be small. We will need to determine the deviation for our course during the trip.

For planning purposes, we will assume that we will experience a southward current of 0,5 kn and average wind of 3-4 BF from Northerly directions. See details in the next chapters.

3. Weather

The typical weather for this part of the ocean for the month of July is governed by the Azores high.
The wind roses indicate a wind primarily from Northerly directions. In the first part of the voyage, the wind direction is (50%) predominant N-ly, 20% NW-ly and 15% NE-ly. Further on the voyage, due to the to be expected effect of the Azores High pressure, the NW-ly component will decrease (11%) and wind will mainly come from N-ly (30%) and NE-ly (25%) direction. Closer to the destination (Azores archipel), the wind is expected to come from NW to NE direction (equal percentages).

The average wind force at the start of the voyage is likely to be 4 BF with 1% calm moments. By the time the Azores are reached the average wind force may decrease to 3 BF, however the percentage of calms has increased to appx. 5%.

Normally no gales are experienced in July and the visibility will be good. However the high mountains on the island are frequently obscured by cloud. Occasionally, the lower land is covered with haze and Sao Miguel may appear as two islands when seen from a distance. Contrary to the Portuguese coastline, fog is rare at the Azores in July.

Observations in earlier and in later months provide averages which are in line with most of the above observations for the voyage. They differ mainly by a less prominent wind direction in August nearer to the Azores, with an increasing westerly component.

The typical barometer pressure reads 1030 mb (or more) at the Azores High. An approach of a depression can be noticed by a sudden drop of pressure and a shift of (strengthening) wind to S or SE direction.

Along the coast line, near higher parts of the island, katabatic winds are possible.

4. Current and tide

Cascais:

Our scheduled departure date is one day before neaps. Springs is Saturday 23 July.

HW Lisbon on Wednesday 13th July is at 0955 UT. Height at HW is 2.9 m (range 1.4 m). HW near Marina Cascais is appr. 0030 earlier than Lisbon. HW Height is 0.2 m lower. Therefore HW Cascais is 0925 UT, height 2.7 m.

Along Portuguese mainland, the current runs in average 0.5 kn southward. Near Cascais, under influence of the Tagus river, the direction of the current may differ, probably running westward.

Azores:

HWS Ponta Delgada (standard port) is usually around 0200 and 1400 local time, and 0700 and 2000 for HWN. HW is roughly 1.7 meter at spring and 1.3 meter at neaps. LW between 0.7 and 0.3 meter. The range is therefore up to 1 meter.

Tidal current at Sao Miguel is less than 1 kn, running eastward on flood, westward on ebb. Close to the coast, the island topology will have an effect on the direction and force.
5. Hazards, obstructions

Poor visibility:
Fog along the coast of mainland Portugal is common in the morning. At strong fog conditions, we will delay our departure.

TSS scheme off the coast.
A TSS area stretches from 9 M west of Cabo Raso / Cabo da Roca (38° 40’N, 009° 40’W) for about 27 M to 38° 34’N, 010° 14’W. The TSS is divided up in 5 lanes with in between 4 separation zones. Traffic direction varies per lane. We need to ensure staying south of the TSS.
We may encounter shipping coming out of the TSS after 27 M (Waypoint WP 2) from departure (Cascais), for a distance of roughly 12 M (Waypoint WP 3).
A careful watch (visual, VHF and AIS) is required for shipping in N and S going directions.

Fishing areas:
Along the coast of Portugal are several fishing areas, some with intensive fishing activity. These include area’s north and south of the approach to the Tagus river. When staying within or close to the approach, we shouldn’t experience difficulties.

Submarine operating areas:
- From the coast westwards up to 11° W
- South of Sao Miquel island, from 25°W westwards
Submarines at surface may be identified by all round flashing amber light (2 flashes per second)

Magnetic anomalies in the area 3 M south off Cascais and south off Cabo Raso can alter local variation by +5° to -3°.

Relief chances of sea bottom (from 125 to over 1000 meter depth) 13 M after waypoint WP 1 may cause a bumpy area over a few miles.
Large marine life
Be aware of the dangers of whales close to the boat. Run engine at low revs if a whale is nearby. Do not use reverse gear, and make gradual changes in speed of engine. We will maintain a visual watch.

Ponta Delgada harbour:
Cruise ships manoeuvre and moor in harbour of Ponta Delgada. Manoeuvring space in East Marina is limited.

6. Alternatives

In case of unforeseen problems, we might consider returning to Cascais.
In case of expected severe weather changes, we may decide to change destination, depending on the available weather information. Note that at strong gales, some harbours along the Portuguese coast will close (swell, breaking seas).

Alternatives at Sao Miquel island are limited to the small port of Vila Franca do Campo. The approach appears difficult at strong wind from southerly and easterly direction.

7. Preferences

- Preference is to leave port early in morning and pass TSS with daylight. We therefore plan as ETD 0900
- Preference is to arrive at Ponte Delgada with daylight. At 5 kn SOG, we should arrive in evening. At 5.5 kn, the ETA would be in the morning.
- Best possible weather data, stable and favourable for first several days.

8. Ship and crew

The ‘Arthur’ is a One Off Sloop 37. It was built in 2015.

It is a relatively fast sailing boat and very sea worthy. Sailing gear consists of a mainsail with 3 reefs, furling jib, storm jib and gennaker. The boat is further equipped with 400 Ah Lithium-ion batteries.

The skipper of the ‘Arthur’, has plenty of miles under his belt with other boats, including a passage across the Bay of Biscay. An ocean passage, such as this one to the Azores, is new to him. He holds an ICC certificate, Day skipper CoC and SRC certificate. In preparation for the trip, he has followed practical training courses on weather, first aid and sea survival.

His Wife (crew member) has sailed with him on daytrips. She has less experience but has strong character to deal with new experiences. She has indicated that she prefers to not be part of the active watch scheme during the night. She holds no certificates, but has followed several of the practical courses together with her husband. Her skill level is comparable with Competent Crew.

His two sons (13 and 16 years) have limited sailing experience and hold no training certificates.
I (co-skipper/watch leader) have built up extensive experience with overnight voyages and day trips, on his own boat and on delivery trips. He holds several certificates, such as Yachtmaster offshore (CE), Yachtmaster Cruising Instructor, Radar, First Aid, Sea Survival and GOC certificate. He is instructor at a RYA training centre in the Benelux.

All adult crew members are, as self-declared, sea proof and seldom experience sea sickness. They have no illnesses or take important medicines. They can all swim.

See also crew & ship list in annex.
Part B : PREPARTION

9. Required materials for navigation

In preparation of this trip, and partly on board during the passage, we use:

Publications:
Atlantic Crossing Guide
North Atlantic Ocean Atlas
Reeds almanac
Atlantic Islands Pilot
Nautical almanac
Sight Reduction tables

Charts:
Imray 100 North Atlantic Ocean passage chart (Great circle)
Imray C20 Strait of Gibraltar to Azores and Canaries (Mercator)
Imray C49 charts for Portugal/Lisbon area
Imray E1 charts for Azores
Digital charts (charts are based on WGS84 datum)
Plotting sheets

10. Other materials

The following other materials will be on board for navigation/communication purposes.
Sextant
Handheld compass (in addition to ship compass)
Binoculars
GPS/AIS transceiver
Radar
Navtex
Barometer
VHF
Iridium sat phone/internet
Mobile phone
iPad with weather software

11. Safety

The following safety materials need to be on board
Epirb (tested)
First aid kit
Wood plugs
Rigging cutter
Grab bag (filled)
Portable VHF (charged)
Life jackets  
Life raft  
Series drogue  
Danbuoy  
Horse shoe buoy  
Fire extinguishers (checked)  
Fire blanket  
Tools  
Spare parts  
Manuals  

12. Regulations  

Portugal and Azores belong to the Euro zone.  

Azores courtesy ensign will be hoisted in mast; under the Portuguese flag.  
Q flag is not required according to the Reeds. To be sure, we will still bring one with us on board.  

EU regulations apply. In the Azores, this apparently comes with lengthy formalities.  
We should report to:  
- Marina Reception office at the East Marina of Ponta Delgado  
- Service estrangers  
- Alfandega office (border police)  
- Guarda national republicana  
- Police Maritima office  

Required papers are: passports, ship&crew list, ICC and/or Yachtmaster Offshore CoC, radio operator certificate, yacht registration certificate (IPC), ship’s radio license, ship’s log, insurance, VAT declaration.  
Before departure, we will make several copies of the documents for issuing at various offices.  

13. Victualling  

We will plan our food supply for a period of 8 days, i.e. 20% longer than normally needed for the envisioned 6 or 7 days (at 5 kn). We will take on all drink water in all water tanks (i.e. 300 litre), plus a large supply of bottled water.  

Several ideas for menus have been drafted up, see annex. Menus for the first days are kept light on purpose to allow the crew to find their sea legs.  

Shopping will be done at Cascais, the days before departure. An actual shopping list will then be drafted up.  

Food and drinks shopped will be registered in the Ship Store List, keeping track of quantities, locations of storage, and expiration dates. During the voyage, the list will be maintained up to date.  

The full cost of victualling is covered by the owner.
14. Final checks

Three days before departure from Cascais, the following checks will be made:
- Deck (fittings, hatches, anchor etc)
- Rigging, sails, halyards, sheets, preventers etc
- Engine
- Bilge pumps
- spare parts
- Fuel
- Gas
- Documents
- Materials (see 9, 10, 11)

The day before departure, the following additional checks will be made:
- Electricity
- Water
- Food
- Financials
- Stowage
Part C:

15. Weather information

Onshore:

Forecasts are available via internet for the Portugal region on www.meteo.pt and www.ipma.pt The latter is very useful and provides a marine forecast and charts on wind, current, waves for the area out of the Portuguese coast and the Azores.

The marine weather forecast coastal/offshore areas are Porto, São Vicente, Josephine, and Acores.

Underway:

Under way, we should be able to obtain weather charts via internet using the Iridium sat phone (Iridium Go) with meteo application on the iPad.

We will download a small data volume with weather data, at least once a day (afternoon, before dinner).

Weather and navigational warnings can also be obtained in English on VHF in A1 area:
- Lisbon region VHF Ch 11 at 0905 and 2105 UT
- Azores islands VHF Ch 11 at 0830 and 2000 UT

Information via Navtex (518 kHz) can be obtained from stations (R) Monsanto/Portugal and (F) Horta, Azoren.

16. Communication

Anne is equipped with VHF and Iridium communication equipment.

The Iridium system can be used for voice calls, sms messages, internet access. The internet access will be used to collect weather data (see 15), send out regular 4 hour position reports to our contacts ashore, and possibly also to send e-mails.

The VHF set is useful in coastal area’s and for contacting ships.

<table>
<thead>
<tr>
<th>Area</th>
<th>VHF channel</th>
<th>Purpose/station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marina Cascais</td>
<td>9</td>
<td>Marina harboumaster</td>
</tr>
<tr>
<td>Offshore</td>
<td>16</td>
<td>Radio watch</td>
</tr>
<tr>
<td>Offshore</td>
<td>6 or 8</td>
<td>Ship-ship navigation</td>
</tr>
<tr>
<td>Near Azores islands</td>
<td>16</td>
<td>VTS or traffic coordination</td>
</tr>
<tr>
<td>Approach Ponta Delgada</td>
<td>11</td>
<td>Port harboumaster Ponta Delgada</td>
</tr>
<tr>
<td>Ponta Delgada</td>
<td>9, 72</td>
<td>Marina Ponta Delgada</td>
</tr>
</tbody>
</table>

Channel 9 is recreational crafts channel, used by all marina’s in addition to published channels.

Our VHF has automatic GMDSS watch on channel 70.
17. Logbook

I will maintain a logbook for this trip, registering amongst other course, log, position, and level of fuel and electricity. Navigation, when well off land, will primarily take place using astronavigation. On daily basis, GPS fixes will also be registered.

The logbook is to be updated every 1 hour when at a distance of 50 M off the coast, and every 3 hours when further offshore. UT is used for time.

Position fixes will also be drawn up in passage chart C20.

18. Watch schedule

A rolling 3 persons watch will be used, as follows.

<table>
<thead>
<tr>
<th>Watch timeslot (UT)</th>
<th>Skipper (Wim)</th>
<th>Co-skipper (Arthur)</th>
<th>Crew (Hilde)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800 – 2100</td>
<td>OFF WATCH</td>
<td>STAND-BY</td>
<td></td>
</tr>
<tr>
<td>2100 – 2400</td>
<td>STAND-BY</td>
<td>OFFWATCH</td>
<td></td>
</tr>
<tr>
<td>0000 – 0300</td>
<td>WATCH</td>
<td>STAND-BY</td>
<td>OFF</td>
</tr>
<tr>
<td>0300 – 0600</td>
<td>OFF WATCH</td>
<td>STAND-BY</td>
<td></td>
</tr>
<tr>
<td>0600 – 0900</td>
<td>STAND-BY</td>
<td>OFFWATCH</td>
<td></td>
</tr>
</tbody>
</table>

Stand-by consists of resting in bunk, but being able to assist immediately on request.

19. Detailed route plan

A detailed route plan is available in the annex, and will be followed when reasonable possible.

20. Waypoints

<table>
<thead>
<tr>
<th>WP number</th>
<th>Name</th>
<th>LAT (N)</th>
<th>LONG (W)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marina Cascais</td>
<td>38˚ 41.1’</td>
<td>009˚ 25.0’</td>
<td>0.5 M south of entrance</td>
</tr>
<tr>
<td>2</td>
<td>TSS N to S lanes</td>
<td>38˚ 30.8’</td>
<td>009˚ 58.0’</td>
<td>4 M south of TSS</td>
</tr>
<tr>
<td>3</td>
<td>TSS west side</td>
<td>38˚ 31.5’</td>
<td>010˚ 13.0’</td>
<td>(clear of TSS)</td>
</tr>
<tr>
<td>4</td>
<td>38˚ 25.3’</td>
<td>012˚ 30.0’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>38˚ 21.4’</td>
<td>015˚ 00.0’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>38˚ 16.7’</td>
<td>017˚ 30.0’</td>
<td>Half way of the passage</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>38˚ 07.3’</td>
<td>020˚ 00.0’</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>37˚ 55.7’</td>
<td>022˚ 30.0’</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Sao Miquel</td>
<td>37˚ 42.0’</td>
<td>025˚ 00.0’</td>
<td>7 M east of Sao Miquel island</td>
</tr>
</tbody>
</table>
21. **Pilotage plans and details on ports**

Pilotage plans are available for departure from Cascais and for arrival at Ponta Delgada, see in annex.

**Cascais Marina:**

[www.mymarinacascais.pt](http://www.mymarinacascais.pt)

- Entrance at NE side
- 70 T boat crane
- Fuel berth
- Repair shops
- Supermarket
- Train connection to Lisbon
- See Reeds page 991 for further details

**Ponta Delgada:**

- Entrance at E side
- 25 ton boat crane in marina, and availability of maintenance company
- Fuelling berth in East Marina
- Ship chandlers
- Gas cylinder refill for butane and for camping gaz
- Require 20 euro berthing fee per night (payable with credit cards)
- Lighthouse tax of 2 euro sometimes demanded
- When wind comes from S-SE direction, a swell builds up making a stay in port unpleasant.
- See Reeds page 1031 for further details

Attention: Diesel is named ‘Gasoleo’ in Portuguese. This can be easily confused with the names for petrol and other fuels.
Annex

- Pilotage Cascais
- Pilotage Ponta Delgada
- Menus
- Crew and Ship List
Pilotage Plan – Departure from Cascais

Leave port, stay well clear off SB harbour entrance (shallow), follow course 040°
Pass the first Red PSM at port side, and change course to 200°
Maintain course for 0.7 M to arrive at WP1
Pilotage by day

From very large distance (apx 30 M on clear day) the Pico da Vara (1100 meter high) of Sao Miquel is visible.

Keep at least 1 M off headlands and coastline.

Sail towards Porta Delgado, WP 12

Keep breakwater (with Red/White banded tower A) to Port

Keep clear of breakwater with course of 315° (T) on 24 meter tower B ashore.

Attention: Cruise ships and other traffic manoeuvring or entering/leaving port.

When tower A on breakwater is bearing 245° (T) , change bearing to 285° (T) direction 12 meter mast C (Green / White banded) at entrance of marina.

Enter the marine between Green/White mast C and Red/White mast D (next to cruise ship terminal)

Attention: Shallow area reported at SB side of entrance. Maintain port side when entering marina.

Attention: Swimming area at Port side of marina, indicated with Green buoys. Keep out of this area.

Moor at the Marina reception E (with many flag poles), directly opposite the entrance. Depth >3 meter.
Pilotage by night:

Sail towards Porta Delgado, WP12; well visible from distance thanks to city lights
Keep breakwater (with Red/White banded tower A with LFl.R.6s 16m10M light) to Port
Keep clear breakwater by bearing 325° (T) on tower B ashore with sector light Fl(2)GWR5s24m10M.

Attention: Cruise ships and other traffic manoeuvring or entering/leaving port.

- When tower A with LFl.R.6s 16m10M light on breakwater is bearing 240° (T), and when Green sector of Sector light ashore (W part of port) with light Fl(4)GWR8s13m10M is visible, change heading to 270° (T).
- When tower A with LFl.R.6s 16m10M bears 135° (T), change heading to 315° (T), direction tower C with light Fl(G)3s12m10M. Keep back bearing of 135° on tower A
- Enter the marina, after passing the 10 meter contour line, between mast D on Port side with light Fl(2)R5s (next to cruise ship terminal) and mast C on SB side with light Fl(G)3s12m10M.

Attention: Shallow area reported at SB side of entrance. Maintain port side when entering marina.

Attention: Swimming area at Port side of marina, indicated with Green unlit buoys. Keep out of this area.

Moor at the Marina reception E (with many flag poles), directly opposite the entrance. Depth > 3 meter.

Harbourmaster VHF Ch 11, Marina VHF Ch 9
Menus:

The following types of menus for a period of 9 days are envisioned for during the voyage, and at arrival in Ponta Delgada. We will alter the menus if necessary depending the conditions on board. Next to these menus, easy breakfasts will be prepared and fruit/snacks/cookies will be available.

- Tikka Masala
- Couscous
- Cassoulet
- Soup
- Salad
- Pasta with tuna
- Omelette
- Noodle meal
- Tortilla chips w/ cheese
- Tortilla warp with filling
- Chicken curry
- Lasagne
- Greek pasta
- Pizza