WORLD ARC AT SEA

Rally at Sea Contents

Rally Communications

Position Reporting

YB3 Satellite Tracking Device

At the start of the Rally, each yacht will be provided with a YB3 satellite tracking device - either a portable model with a battery, or a fixed model connected to the boat's power system. YB3 devices must be located on deck and able to 'see' the sky. Once activated, the units send an automated position report at regular intervals. Boat positions are then displayed on the Rally website.

The tracker and position polling data costs for the Rally are included in the entry fee. After the Rally, the tracker remains your property, with data polling costs within your control.

Contacting Rally Control

Communication with Rally Control is via email. It is a requirement that boats are capable of sending and receiving email at sea.

Emails to Rally Control will normally be to report an impending arrival or a non-distress incident at sea.

It is useful to 'cc' Rally Control to emails you send during the Rally to local companies so the team can help if required.

If you have restricted access on your email accounts (eg. Winlink), ensure you add the Rally Control email address to the approved senders list.

In addition, there is a phone number available 24 =hours a day for urgent, but not distress, communications. The email address, phone number and WhatsApp will be provided at check-in.

Skippers must register their boat at-sea email address(es) in the Members Area.

Automatic Email Service

The automatic email service allows skippers to request up-to-date information about the Rally (positions, weather, communications lists etc.) 24/7, via an automated responder email address. Full instructions are provided at Rally check-in.

The service is activated approximately one week before the start of the Rally. Users can opt in or out of receiving daily weather and fleet positions.

Communication Nets

There are two intra-yacht communications nets which operate while the fleet is at sea, enabling yachts to stay in contact during the passages, pass on news, position reports and co-ordinate emergency assistance. It also enables yacht-to-yacht social contact, with various fun activities developed each year.

The main net is on WhatsApp, which allows boats with suitable satcoms systems to have a 'roll call', swap weather information, chat and share photos.

There is also an SSB (HF) radio net co-ordinated within the fleet by volunteers who act as host, switch frequencies as the fleet spreads out, run the roll-call, invite relays and rebroadcast the daily weather forecast.

Each year, the great advantage of the fleet communications net is shown when co-ordinating the fleet response to emergencies at sea, making it easy to speak to a large group simultaneously.

Volunteer Radio Net Controllers

We need volunteer radio net controllers for the Rally. The job is fun and rewarding. Although not essential, it is expected that volunteer radio net controllers will have some experience operating SSB transceivers. Please let the Rally check-in team know if you are interested in being involved.

Weather

Rally Weather Forecasts

On official Rally legs a weather forecast is sent to the fleet via email. A professional meteorologist produces the forecast specifically for the fleet and gives a synopsis with a 48-hour forecast. It is written based on a map defining the Rally Zones (sea areas) along the route, and uses a number of abbreviations - see page 4.

Further details regarding the weather report and map with sea areas will be given prior to the start. The weather forecast is sent via email. Please ensure the Rally Control email address (issued at check-in) is added to your list of contacts.

The weather forecast will also be read over the daily SSB radio net.

> Skippers are reminded that the Rally weather forecast is not the only weather forecast available for the route, and should not be relied upon as such.

The forecast should be read alongside other sources of weather information including weatherfax, Navtex, radio nets, Inmarsat, and subscription forecasting/routing, to build a picture of the likely weather to be experienced.

A useful practice before the start of the Rally is to begin to understand the general weather patterns on the route, how they form and the likely conditions that can be expected.

We recommend you have a sound understanding of meteorology and gather as much information as possible on the general weather patterns on the route, how they form and the conditions that can be expected.

An up-to-date weather forecast, plus further information, including details of the daily radio net, weather forecast times and departure/arrival details, is distributed at the briefing prior to the start of each Rally leg.

Rally Times

Rally times will be given in UTC unless otherwise specified.

A typical report, with abbreviations explained, is detailed in the example on the next page.

Abbreviations used in email rally weather forecasts

N	North
E	East
S	South
W	West
altho	although
&	and
becmng	becoming
bkn	broken
cntrl	central
cld	cloud
30/11	date in day/month
elswhr	elsewhere
FX	forecast
frnt	front
hvy	heavy
isold	isolated
ltr	later
posn	position
pos	possible
sct	scattered
shwrs	showers
squls	squalls
sqly	squally
synop	synopsis
thru	through
tom	tomorrow
tsms	thunderstorms
tndry	thundery
0000	time in hours/minutes
tonit	tonight
UTC	universal time (GMT)
vrb	variable
w/	with
wkng	weakening
WX	weather

Date & Time of issue

Synopsis

Forecast areas eg Charlie, Delta, Echo, are explained at the briefing before each leg & a map is provided.

48 hour forecast by Rally zone with wind, sea state and weather

Forecast for World ARC Rally
WORLD ARC CAPE TOWN TO BRAZIL - 01/19 05Z - FORECAST UPDATE #7.

WEATHER ROUTING INC. IS PROUD TO BE THE OFFICIAL WEATHER PROVIDER FOR THE WORLD ARC CAPE TOWN TO BRAZIL
PREPARED: JANUARY 19 05:45Z
FM: WEATHER ROUTING INC. (WRI)

SYNOPSIS: GOOD DAY. LARGE ELONGATED HIGH PRESSURE EXTENDS ACROSS THE SOUTH ATLANTIC FROM NEAR 15S AND 35W SE'WARD TOWARDS 43S AND 20E THIS MORNING. SE'RN PORTION OF THIS HIGH WILL CONSOLIDATE GRADUALLY THROUGH TOMORROW MORNING TO CENTER NEAR 35S/05E, WITH BROAD RIDGING EXTENDING N'WARD TOWARDS 20S AND NW'WARD TOWARDS 30W. RIDGING WEAKENS AND RETREATS E'WARD TOWARDS 20W THROUGH MIDDAY 21ST AS HIGH SLIDES SE-E'WARD BELOW SOUTH AFRICA. BROAD THERMAL TROUGH OF LOW PRESSURE EXTENDS OVER W'RN SOUTH AFRICA AND NAMIBIA THIS MORNING. TROUGH DEEPENS SLIGHTLY THROUGH THIS EARLY AFTERNOON, THEN BROADENS WHILE REMAINING IN PLACE THROUGH EARLY 21ST.

CONCLUSION: STRONG WINDS AND LARGEST SWELLS WILL BE SEEN ACROSS N'RN CHARLIE, SW'RN DELTA, AND E'RN ECHO THIS MORNING. SWELLS AND WINDS WILL TEND TO LOWER THROUGH THE NEXT 2 DAYS AS HIGH MOVES AND THERMAL TROUGH WEAKENS AS DESCRIBED ABOVE, RESULTING IN LESS ENHANCEMENT FROM INTERACTIONS BETWEEN THE TWO FEATURES.

CHARLIE FORECAST:
19/06 GMT(T + 0): WINDS ESE-SSE 19-24KTS. SEAS 4-5 SWELLS S-SW 9-11FT (13SEC). SKIES MOSTLY CLOUDY. SCATTERED SHWRS/SQUALLS*. CURRENTS FROM SE @ 0.6KTS.
19/18 GMT(T + 12): WINDS ESE-SSE 17-22KTS. SEAS 3-4 SWELLS SSW-WSW 8-10FT (12SEC). SKIES PARTLY CLOUDY. SCATTERED SHWRS/SQUALLS*. CURRENTS FROM E @ 0.3KTS.
20/06 GMT(T + 24): WINDS ESE-SSE 15-20KTS. SEAS 3-4 SWELLS SSW-WSW 7-9FT (11SEC). SKIES CLOUDY. SCATTERED SHWRS/SQUALLS*. CURRENTS FROM SE @ 0.6KTS.
20/18 GMT(T + 36): WINDS ESE-SSE 14-19KTS. SEAS 3-4 SWELLS SSW-WSW 6-8FT (8SEC). SKIES MOSTLY CLOUDY. ISOLATED SHWRS/SQUALLS*. CURRENTS FROM ESE @ 0.3KTS.

DELTA FORECAST:
19/06 GMT(T + 0): WINDS ESE-SSE 17-22KTS. SEAS 3-4 SWELLS S-SW 8-10FT (13SEC). SKIES CLOUDY. SCATTERED SHWRS/SQUALLS*. CURRENTS FROM N @ 0.6KTS.
19/18 GMT(T + 12): WINDS ESE-SSE 16-21KTS. SEAS 3-4 SWELLS S-SW 7-9FT (14SEC). SKIES PARTLY CLOUDY. ISOLATED SHWRS/SQUALLS*. CURRENTS FROM N @ 0.7KTS.
20/06 GMT(T + 24): WINDS ESE-SSE 15-20KTS. SEAS 3-4 SWELLS S-SW 6-8FT (12SEC). SKIES CLOUDY. ISOLATED SHWRS/SQUALLS*. CURRENTS FROM NNW @ 0.5KTS.
20/18 GMT(T + 36): WINDS ESE-SSE 14-19KTS. SEAS 3-4 SWELLS S-SW 5-7FT (11SEC). SKIES MOSTLY CLOUDY. ISOLATED SHWRS/SQUALLS*. CURRENTS FROM N @ 0.7KTS.

ECHO FORECAST:
19/06 GMT(T + 0): WINDS E-SE 16-21KTS. SEAS 3-4 SWELLS S-SW 7-9FT (11SEC). SKIES CLOUDY. ISOLATED SHWRS/SQUALLS*. CURRENTS FROM NW @ 0.5KTS.
19/18 GMT(T + 12): WINDS E-SE 15-20KTS. SEAS 3-4 SWELLS S-SW 6-8FT (11SEC). SKIES MOSTLY CLOUDY. ISOLATED SHWRS/SQUALLS*. CURRENTS FROM SSE @ 0.2KTS.
20/06 GMT(T + 24): WINDS E-SE 15-20KTS. SEAS 3-4 SWELLS S-SW 5-7FT (11SEC). SKIES CLOUDY. ISOLATED SHWRS/SQUALLS*. CURRENTS FROM NNW @ 0.3KTS.
20/18 GMT(T + 36): WINDS ENE-ESE 12-17KTS. SEAS 2-3 SWELLS S-SW 5-7FT (11SEC). SKIES PARTLY CLOUDY. CURRENTS FROM NNW @ 0.2KTS.
* WINDS AND SEAS HIGHER IN SQUALLS

BEST REGARDS, WEATHER ROUTING INC. (WRI)

Weather Information Providers

With Starlink and other fast internet services, the access to weather information has improved immensely. Users can browse and compare a wide range of sources, as they would at home.

With satphone, the main choices for forecasts are either calling a forecaster or routing service, or downloading text or GRIB data via email.

For those boats with SSB, radio nets, voice forecasts and data via weatherfax/RTTY or by email with a pactor modem is possible.

Navtex on 518 kHz will work to around 270NM from shore, but is not available in all parts of the world.

HF SITOR (RadioTelex)

RadioTelex (RTTY) is a text based system transmitted via HF radio and is similar to Navtex but with a far greater range.

NOAA Stations

weather.gov/marine/uscg_broadcasts

Boston NMF, Pt Reyes NMC, Honolulu NMO and Guam NRV.

SSB Voice Forecasts

Atlantic region: NOAA: Chesapeake NMN

Pacific region NOAA: Pt Rayes NMC, Honolulu NMO and Guam NRV
weather.gov/marine/uscg_broadcasts

New Zealand/Pacific: Taupo Maritime Radio ZLM maritimeradio.org/taupo-maritime-radio-zlm

Fiji: Suva Radio 3DP

Tonga: Nuku'alofa Radio A3A

Australia: Weather East VMC and Weather West VMW bom.gov.au/marine/radio-sat/marine-radio-sat.shtml

Indian Ocean south: Brunei Bay Radio V8V2222

Mauritius: Port Louis 3BB

Reunion: COSRU MRCC

South Africa: Cape Town ZSC, Durban ZSD, Port Elizabeth ZSQ

Brazil: Rio de Janeiro PWZ-33

SSB Radio Nets

Maritime Mobile Net (MMN)	MHz	Time UTC
Transatlantic Maritime Mobile Net	21.400	1300
Worldwide Weather Net	21.303	1300
UK MMN	14.303	0800/1800
Caribbean Maritime Mobile Net	7.250	1100
Caribbean Weather Net	7.086	1120
INTERMAR (German MMN)	14.313	0800/1630
Maritime Mobile Service Network	14.300	1700-0200
South East Asian Waters	14323	0055
Radio Peri Peri VK6BO Roy	8,101	0500
South African Maritime Mobile Net	14,316 & 7,120	0630 & 1130
Pacific Maritime Mobile Net	21,412	2100-2400

Weather Fax

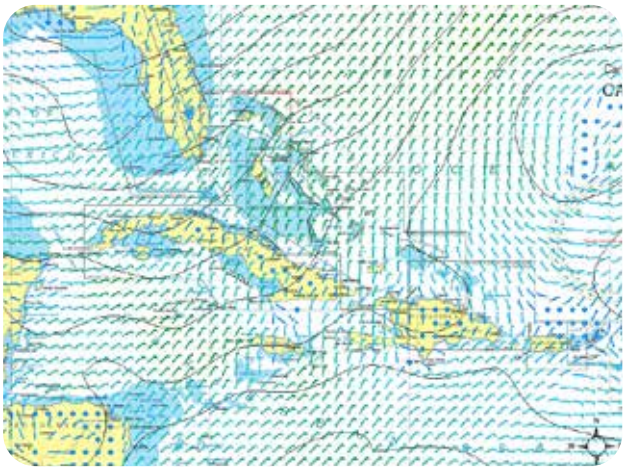
USA NMC KVM NMG Download information from weather.gov/marine/radiofax_charts

UK RN Northwood (GYA) 2618.5 kHz, 4610 kHz, 8040 kH, 11086.5 kHz This is a military service available to yachtsmen.
weatherfax.com/gya-northwood

Germany Hamburg (DDH and DDK) 3855, 7880, 13882.5 kHz weatherfax.com/ddh3-ddk6-hamburg

When receiving weatherfax via SSB, use USB mode and tune 1.9kHz lower (eg for 3855kHz tune to 3853.1kHz).

A full list of SSB voice and data forecasts can be found in the Admiralty List of Radio Signals NP281/1 (Europe, Africa and Asia) and NP2811/2 (Americas, Far East and Oceania).



Saildocs GRIB data overlaid on an electronic chart

GRIB Files

Recomended free or subscription GRIB files with viewers or for overlay on an electronic chart:

Zygrib (free) zygrib.org

Saildocs (free) saildocs.com

Theyr (subscription) theyr.com

Most electronic charting systems will allow GRIB files to be displayed on the charts.

Free Weather Websites

weather.mailasail.com lots of information and downloads, including GRIB data. Includes information from Frank Singleton (Frank's Weather) and Chris Tibbs.

weathercharts.org links to world weather forecast information and satellite images.

passageweather.com free forecasts for sea areas worldwide, based on a variety of sources.

ogimet.com weather maps, data forecasts and directory of information for global weather. In Spanish and English.

Selected National Meteorological Offices

USA	weather.gov/marine/hsmz
UK	metoffice.gov.uk/weather/specialistforecast
France	meteofrance.com
French Polynesia	meteo.pf
New Zealand	metservice.com/marine/high-seas
Australia	bom.gov.au/marine
Mauritius	metservice.intnet.mu
South Africa	weathersa.co.za
Brazil	portal.inmet.gov.br

Weather Subscription Services

Most weather services are provided on a subscription basis which can be tailored for specific routes, or forecast data for a sea area.

Forecasts can be supplied as plain text e-mails, small png graphics for quick download, or GRIB files to integrate with navigation software.

Chris Tibbs Simon Keeling	http://weather.mailasail.com/ weatherweb.net
Ken McKinley	locusweather.com
Ken Campbell	commandersweather.com
Weather Routing Inc	wriwx.com
Chris Parker	mwxc.com
Buoy Weather	buoyweather.com
Meeno Schrader	wetterwelt.de

App Weather Forecasts

The best apps charge a subscription fee.

Predict Wind	predictwind.com
SailGrib	sailgrib.com
Gribview	theyr.com
Squid Moible	squid-sailing.com
Windy	windy.app

Notes on Weather Charts

By Chris Tibbs

Close to the equator, mean sea level pressure charts are of limited use as changes in pressure are small. In addition, the Coriolis Force, from the spinning earth, is minimal (zero at the equator) so wind tends to blow from high to low pressure. It is also the reason that hurricanes do not develop near the equator.

If available, charts showing stream line analysis are more accurate when sailing within about 10° or 15° of the equator. Some streamline analysis charts are available from the US and also Australia when west of the date line.

It is also important to remember that on a chart showing surface pressure the further we are from the poles, the higher the wind strength for a given isobar spacing.

For example; isobar spacing at 60° indicating 18 knots of wind would, for the same spacing, be 24 knots at 40°, and 45 knots at 20°. Therefore a depression in the tropics will give stronger winds than the same size in higher latitudes.

Tropical Weather Notes

By Chris Tibbs weather.mailasail.com/

The Pacific is a big ocean, and although the route is predominantly tradewinds, there will be different conditions as we move from the northern to southern hemisphere across the doldrums, and into the tradewind belt.

Whilst the route avoids tropical storm seasons and the majority of voyages across the Pacific avoid bad weather altogether, there are a number of things to be aware of.

Inter Tropical Convergence Zone

The Inter Tropical Convergence Zone (ITCZ) is historically known as the doldrums, this is the thermal equator of the world. It is a band of low-pressure between the NE tradewinds of the northern hemisphere and the SE tradewinds of the southern. These winds converge, and between them is a band of light wind and often-towering cumulonimbus clouds. This is the squalls and calms of the doldrums.

The ITCZ follows the sun, moving south in the southern hemisphere summer (although in the east Pacific it stays north of the Equator) and north in the winter. You should cross the ITCZ between Panama and Ecuador and thereafter you will stay south of it.

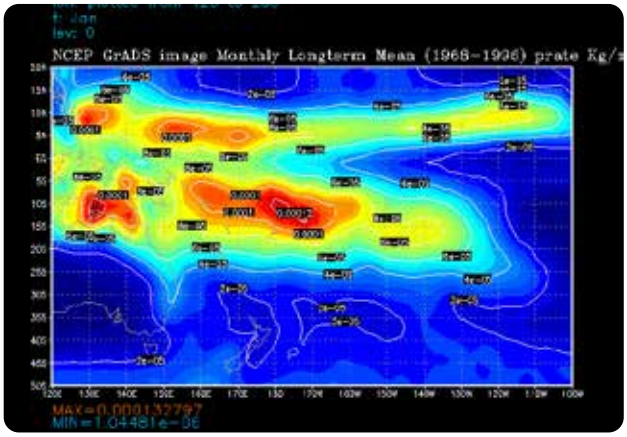
However, in the South Pacific there is an area termed the South Pacific Convergence Zone (SPCZ). This is a persistent elongated or sausage shaped zone of low-level convergence that extends from 140°E near the equator to about 120°W at 30°S.

It is most active in the summer months (southern hemisphere summer) however, it is located closer to the ITCZ. In the winter months it is more transient and can affect the western side of the Pacific from near the Solomon Islands to Fiji, Samoa, Tonga and further southeast.

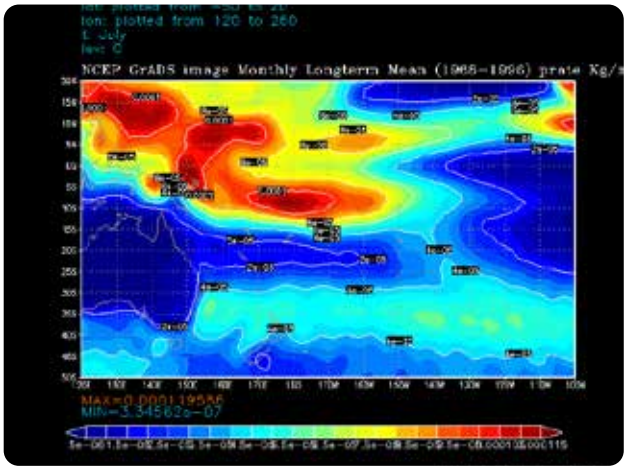
The SPCZ is caused by convergence between the easterly tradewinds near the equator and south easterly tradewinds from further south. It is sometimes termed a monsoon trough, tradewind convergence or the tradewind front. The position will move with the ENSO cycle (see section on El Niño).

There can be some strong winds if the SPCZ interacts with other systems. It is often marked on synoptic charts and mentioned in west Pacific forecasts.

In the diagrams above illustrating the position of the ITCZ, the bright colours show rainfall rates and indicate areas of convection.



ITCZ position in January



ITCZ position in July

High Pressure

South of the equator, the winds of the Pacific are driven by the semi-permanent subtropical high pressure area of the South Pacific.

Like the Azores (Bermudan) high of the North Atlantic, all large ocean basins have a semi-permanent high pressure area in the subtropical belt near 30° north and south of the equator, and are part of the global circulation patterns of the earth.

During the summer months in the South Pacific, the high pressure moves a little south to be at about 35°S and 100°W.

As we move into the southern winter, the high drifts north maintaining a ridge towards Australia. This is an average position and is situated south of the Galapagos Islands.

This high drives the trade winds of the South Pacific giving figures of 10-20 knots at 5-15°S and 15-25 knots at 15-25°S.

The speed of the trade winds can vary depending on the intensity and position of the high pressure. This will also depend on the ENSO cycle.

El Niño and La Niña (ENSO Cycle)

El Niño and La Niña is a 'see-saw' pattern that takes several years to go back and forth.

It can be measured by the Southern Oscillation Index (SOI), which measures the air pressure difference between Tahiti and Darwin. When the SOI is negative (high pressure Darwin low Tahiti) it is an El Niño phase.

For the voyage across the Pacific, the El Niño phase gives generally weaker trade winds, and La Niña stronger. There is also a change in the position of the ITCZ and SPCZ, both moving north in an El Niño year with high rainfall in the central Pacific region.

Prediction of the ENSO Cycle is difficult but in February 2025 there were weak La Niña conditions.

Dangers

Most of the time the South Pacific is placid with little to worry about but we cannot ignore the forecasts, as there may be changes to the normal pattern.

Hurricanes

In the south Pacific hurricanes are called cyclones or tropical cyclones. The season runs from mid November to April generally from 5-30°S and extends from Australia to Tahiti or occasionally the Marquesas.

By the end of March the Marquesas are considered to be safe from tropical cyclone activity. Further west in Fiji, the tropical cyclone season extends to the end of April.

The maximum number of expected cyclones is during February. There has been a general increase over the years. However, this may be due to the increased detection rate brought about by satellite pictures rather than an overall increase.

Squalls and Thunderstorms

Squalls with gale force gusts ahead of the rainfall are possible throughout the tropics. They are likely to get more numerous as you go west, particularly in the area of the SPCZ.

Squalls bring heavy rain, strong, gusty winds (up to 40-50 knots) and a big shift in wind direction. The duration can be from less than an hour to several hours, and while squalls are more common at night, they can also be experienced during the day.

Tropical Lows

Atlantic squall on the horizon.

Although you will be outside the cyclone season, occasionally a depression will form in the tropics (most likely in May or June). These can rapidly deepen as they move into the subtropics and can generate storm force winds.

One in June 1994 started between Vanuatu and Fiji deepened rapidly as it moved south (described as a meteorological "bomb" by the New Zealand Met Service). This storm decimated the cruising fleet sailing between New Zealand and the Pacific Islands causing the loss of three lives and seven boats.

Anecdotal evidence indicates around two to four depressions forming in the tropics during a year, but very few deepen to the same extent.

In the tropics (within 23° of the equator) there is a diurnal pressure change of around 2mb. This gives a maximum pressure at 1000 and 2200 local sun time, and a minimum at 0400 and 1600.

Different places will vary slightly, however it is worth recording barometer pressures. Any falls of pressure outside of the normal diurnal pressure changes indicate a change.

It may be just a weakening of the high-pressure area, but a significant change indicates the formation of a depression and should be taken seriously.

Currents

From the Galapagos Islands to Australia the current is favourable, however the islands will often deflect the current and will always accelerate it.

Occasionally the current reverses if the trades fail. This is the South Equatorial Current and flows in a westerly or southwesterly direction (slightly away from the equator).

Swell

For the most part swell is a function of the strength of the trade winds and can make some anchorages uncomfortable.

Deep depressions away from the area will propagate northwards to cause an uncomfortable swell that is difficult to predict. Swell and wave charts are available online and some GRIB files will show wave heights.

When anchoring, comfort wise, there is a large difference between the islands fringed by reefs, which will protect anchorages, and the islands that are not protected.

Tropical Sailing Tips

Sailing in the tropics during the safe season can deliver days on end of trouble-free sailing. However, for sailors arriving from a temperate area the tropics demand a different approach, as many of the situations that will be encountered may be quite different to what they are used to.

When sailing in coastal waters in Europe, the US and to some extent Australasia, skippers become accustomed to a particular type of navigation.

The quality and accuracy of the charts are good, with updates regularly available. Pilot books offer detailed information on the places that are frequently visited. This makes day and overnight sailing easier and the experience more enjoyable.

However, the attraction of sailing in many other parts of the world arises from their remoteness and tranquillity. For this, the cost is often less certainty and accuracy in published charts and pilots. Cruising in these places therefore requires additional care.

Navigating in the Shallows

Often channels will be unmarked by buoys or beacons and you may have to find you own route through. One of the dangers in navigating in shallower water, particularly in the mid Pacific, is that steep coral heads (bommies) can rise up quickly from the sea bed. This will be undetectable by vertical sonar and you may not discover them until damage has been done.

A solution could be to fit forward looking sonar to give reliable warning, regardless of the time of day and weather conditions. However, simple, practical steps can help pilotage through these difficult areas.

Height

If you are navigating a tricky passage, try to get a 'spotter' as high up in the boat as possible as they will be able to see the coral much more clearly. This may mean a trip part-way up the mast.

Sunglasses

Polarized sun glasses are essential in shallow or coral waters. They cut-out reflected light, making it easier to see relative depths.

Colour

Depths of coral and the shape of the feature can usually be estimated by colour.

Coral that appears brown in appearance is likely to be less than 1m. Below that, coral will be light green at 2m and the shade will get darker with depth.

In clear azure water, the depths are often greater than they look but this is probably a helpful illusion to deal with.

Timing

Try to make approaches when the sun is high and the skies clear - between 09:00 and 15:00, or 13:00 for approaches westwards. Low sun shining into the eyes make identifying reefs much harder.

Speed

Don't forget that reducing speed will give greater opportunity to appreciate the depths, to alter course in good time, and ultimately reduce the chance of damage if mistakes are made.

Lagoon Entrances

Thought should always be given to the time at which one enters or exits a lagoon. Information can be found in pilot guides, but always be cautious.

Passes are often constricted and therefore tidal currents are stronger than one might expect. Generally speaking, but more valid for smaller lagoons, surf will break over the reefs and fill up the lagoon. This will create a current out of the lagoon,

snubbing the flood and accelerating the ebb. It may also mean that an anticipated slack water is not so.

The accelerated flows will probably create considerable disturbance as it meets with the ocean, particularly, as you would expect, if the wind is in opposition. The standing waves, occasionally breaking, should be treated respectfully - leave it a bit longer on the transit until you turn to pick up a course.

Electronic Aids

Electronic aids to navigation can be invaluable, but their limitations should always be remembered and where possible, confirmed with eyeball or radar observations. GPS accuracy in relation to charts is not always exact. If fitted to a yacht, the overlay of radar information on top of an electronic chart will help to confirm your approach. Remember to check GPS offset.

Working with a GPS and chart will be most accurate when the GPS position has been derived using the same system which determined chart positions.

Tropical Squalls and Fronts

Tropical squalls often catch newcomers to the tropics by surprise and can cause damage to gear. Squalls are always preceded by an impossible to miss black cloud that has a straight bottom roughly parallel to the horizon, hence their definition as line squalls.

Tropical squalls always travel with the wind, so looking regularly to windward, you should not miss one approaching. They also show up well on radar and are quite visible to the naked eye even at night.

If a squall is detected in good time, and if the advancing front is small, it may be possible to avoid being in its path by altering course. Sail should be shortened promptly as by the time the squall hits it is usually too late.

While squalls at sea can usually be easily dealt with by a vigilant crew, abrupt changes in weather caused by the passing of a depression can cause havoc among boats at anchor.

With the strengthening wind often changing by as much as 180° in direction, boats anchored in places that were deemed to be safe and well protected can be put suddenly on a dangerous lee shore. Combined with a violent short swell produced by several miles of fetch across a wide lagoon, a boat can easily be driven ashore. Severe damage can also be caused by the chain being caught under coral heads.

Health Considerations

Those balmy sun-kissed tropical islands are not always the healthiest places on earth.

The main concern is overexposure to the sun. A hat and a long sleeved shirt should be worn, the boat should be provided with a bimini or awning and use strong sun block cream.

Protect from bites by mosquitoes or the irritating sandflies common to some of the beaches in the Marquesas. Repellent sprays are quite useful, but better to avoid being ashore at the critical times around dusk and early evening when mosquitoes are most active.

Of the mosquito born diseases, dengue fever is present throughout the Pacific, while malaria is the main hazard on islands west of Fiji (Vanuatu, Solomons and Papua New Guinea). In these areas prophylactics should be taken, but as several strains of malaria are now resistant to prophylactic medication so the best protection is still to avoid being bitten. Not going ashore at dusk, using a strong repellent while ashore in doubtful areas, using smoking coils and screening all openings are simple precautions that seem to work.

Although sharks are often present in lagoons, they are rarely of danger if some simple precautions are observed. The time to avoid them is around dusk at shark feeding time. If fishing with a speargun, the speared fish should be taken out of the water immediately and put in a dinghy as the blood and vibrations emitted by a wounded fish will attract any sharks that happen to be in the vicinity.

Ciguatera Fish Poisoning

One serious hazard in all tropical waters is ciguatera poisoning. The culprit is a toxic microscopic algae that is ingested and concentrated in the flesh of reef feeding fish.

Ciguatera fish poisoning is endemic in all tropical areas and occurs regularly between latitudes 35°S and 35°N. It is estimated that every year there are about 60,000 cases worldwide. In the Caribbean, where most cases occur north of Martinique, around 100 cases per 10,000 people are reported each year, and the situation is possibly even worse in French Polynesia and the Marshall Islands.

Over 400 different species of fish have been incriminated at one time or another, sometimes with a species being toxic in one area but not in another, even within the same lagoon. There is no way of telling which fish may be poisonous and which safe.

Symptoms

Not everyone eating ciguatoxic fish has the same symptoms, although diarrhoea, nausea, abdominal pain or vomiting usually occur within a few hours. Prickling in the fingers and toes as well as tingling around the mouth are other symptoms, accompanied by an alteration of sensation causing cold objects or drinks to feel hot or plain water to taste like soda and a shower to feel like pin pricks of electric shocks. Other symptoms are extreme tiredness and lethargy, itching, muscle and joint pain, a weakened pulse and falling blood pressure.

In most instances the symptoms subside after a few days, although the itching and alteration of sensations can last for several weeks.

Recently ciguatera has been successfully treated with IV mannitol. The usual dose is one gram mannitol per kilogram of body weight. The medication is infused intravenously as a twenty per cent mannitol solution. The earlier a victim is diagnosed and treated, the more likely its success. Antihistamines, calcium gluconate, atropine and vitamin B have also been used to reduce the symptoms.

Untreated, ciguatera can last between one to two months, although some symptoms may persist for longer.

Avoidance

The risks can be minimised by gutting fish as soon as it is caught and by not eating the head, liver, roe and viscera as the toxin is concentrated in these organs.

All large fish caught inside a lagoon, or close to a reef, should be treated with suspicion, especially snappers, groupers, barracuda, jacks and moray eels. It pays to take local advice as most islanders know only too well which fish and which areas of their lagoon should be avoided.

Freezing, drying, cooking or marinating the fish does not destroy the poison and affected fish looks, smells and tastes normal.

Cigua-Check (TM) will test ciguatoxin at levels generally below the level that can cause clinical symptoms in humans.
cigua.com

Passage Notes

This section looks at the different stages of the Rally, giving an overview of the voyage and expected weather conditions for the ocean crossings. Passage notes are compiled from feedback from previous participants, with weather advice from sailor and meteorologist Chris Tibbs.

More information on the destinations is in the Local Information section, including lists of pilot books, and detail on departure and arrival will be provided at the skippers' briefings along the route.

Saint Lucia to Panama

This initial passage across the Caribbean Sea can be one of the more rigorous stages of the Rally. The winter tradewinds blow more strongly, causing rough conditions with steep seas. Seas tend to build towards the Colombian coast. This is generally a downwind passage, and boats are often well-reefed.

It is prudent to set a course that stays in deeper water off the Guajira Peninsula before setting a course for the approaches to the San Blas Islands.

Currents flow from the Lesser Antilles generally north-westward towards the Gulf of Mexico. Flow rates can be 1-2 knots, and are affected by wind strength. On the passage from San Blas to Colón the current runs generally eastwards, following the Panamanian and Colombian coasts, usually at less than one knot.

Panama

Weather - Saint Lucia to Panama

Expect moderate to strong east-northeast trade winds. Averages indicate 15-20 knots increasing from about 70°W. The direction becomes more northeasterly and the chance of gales also slightly increases to about 2% of the time.

Approaching Panama the wind is likely to become more variable with a chance of north or northwest wind.

Panama is hot and humid, and although it is technically the dry season, rain can be heavy with squalls.

Panama to Galapagos

Boats can experience adverse current of over 1 knot and headwinds on this passage, but generally the weather is affected by the ITCZ. The south east tradewinds may not yet be established, meaning winds can be very light, and lots of motoring is not unknown. Expect hot conditions with rain.

Weather - Panama to Galapagos

In the Gulf of Panama the most likely direction of the wind is north There is also an anticlockwise current in the gulf.

With luck you will hold the northerly wind for the first 48 hours, although it will weaken with progress, before hitting the ITCZ. There may be south or SW wind to begin with (occasionally even west), we should find that by half way the wind has backed to the south or south east as we move into the tradewind belt.

Usually 10-15 knots, the trades will depend on the position and intensity of the high to the south. Gales are very rare and the sea surface temperature will be around 24-26°C.

The Galapagos Islands

'Yellow Shirt' working with Sea Lion alongside him in the Galapagos

Only four islands have settlements on them: San Cristobal, Santa Cruz, Floreana and Isabela. All yachts will arrive at and depart from one of the two main ports of entry: Baquerizo Moreno (Wreck Bay) on San Cristobal, and Puerto Ayora (Academy Bay) on Santa Cruz Island respectively.

The weather is very untypical for the latitude of the islands. Because of the cold water Peru Current (Humboldt Current) the normal water temperature can be anything between 15 and 18°C, hence the presence of the Galapagos penguins. The cold waters and warm air often cause the so-called 'garua', a misty condition more common in places like Ireland and not in islands that straddle the equator.

During an El Niño episode the waters get much warmer, which can have an effect both on local climate and on the local wildlife as birds that dive for their food are no longer able to dive to the greater depth where their normal source of food has migrated to avoid the warm surface waters.

Every island has something special to offer and one is constantly surprised not only at the abundance of wildlife, ashore, in the air and in the sea, but also its variety. Each island seems to have its own resident species, penguins on San Salvador, marine and land iguanas on Santa Fé, magnificent frigate birds on North Seymour, sea lions, flamingos and pelicans on Rabida, giant tortoises on Isabela and white-tipped sharks at Bartolomé. Sullivan Bay on Bartolmé is a picturesque lava crater with stunning views from the summit of the island.

Weather - Galapagos

The Galapagos Islands are in the tradewind belt (just) and winds will be predominately between south and east with occasional northeast. Average speed 8-13 knots with diurnal variations caused by the larger islands.

Galapagos to the Marquesas

If there is a favourable wind soon after the start, the recommended tactic may be to sail a direct course to the Marquesas. However, if there is no wind, one should sail southwest to around 2°S where there is a better chance of finding the wind. From there, the course can be set for Hiva Oa.

These tactics are only recommended if there is enough wind for sailing, otherwise it makes more sense to motor along the rhumb line. Usually the weather gets better as the season progresses, with passages in March and April experiencing more unsettled weather than in May or June.

Weather - Galapagos to Marquesas

As you progress to the southwest, the trade winds should become a little stronger and steadier, although they are generally not considered to be as steady as their northern equivalents.

The predominant direction is south east although they can wander to the east, occasionally to the northeast. The further south we get the stronger the wind will be with the average increasing to 13-18 knots.

French Polynesia

The Marquesas

Between the arrival at Hiva Oa and the rendezvous in Nuku Hiva, World ARC yachts will have approximately one month to cruise the Marquesas, then another month cruising the Society Islands to Bora Bora.

The Marquesas are one of the most attractive cruising destinations in the world, so one should spend sufficient time there and make two or three stops in the Tuamotus.

Hiva Oa

View over the Hiva Oa anchorage

The landfall island of Hiva Oa is a perfect introduction to the diversity of the Marquesas.

A steep road leads up from the village of Atuona to the small cemetery where Paul Gauguin was laid to rest in 1903. The French painter had spent his last days here and his paintings first alerted the rest of the world to the beauty of these islands.

There are also good anchorages on the northern shore of Hiva Oa, and also a well sheltered bay at Hanamenu, at the island's western point, close to a cluster of ruined fortifications.

Tauhata

Atuona's rolly harbour is not the best of places to spend too long but there is an alternative at the nearby island of Tauhata where Hana Moe Noe Bay provides a well sheltered anchorage.

The nearby golden beach is very tempting but can be shared with Marquesan sandflies so it would be wise to enjoy the scenery from the safety of the cockpit.

So while the anchorage is perfect, one should only go ashore when the sun is overhead. There are two other good anchorages on the west side of Tauhata off the villages of Vaitahu and Hapatoni.

Fatu Hiva

Lying some 40 miles to windward of Hiva Oa is the smaller island of Fatu Hiva that boasts the most beautiful anchorage in the whole of French Polynesia. Called in French La Baie des Vierges (the Bay of Virgins) the surroundings of Hanavave are truly spectacular, with huge rock formations overlooking the tranquil bay. The small village at the head of the bay has a breakwater and short quay, which makes landing from the dinghy straightforward. The detour from Hiva Oa is only recommended when the trade winds are not too strong.

There is also a reasonable anchorage off the main settlement of Omoa, in the southwest of the island.

Nuku Hiva

Tiki in Nuku Hiva

Although it is possible to sail around the island and anchor in one of the bays on its northern side (at Anaho or Hatiheu), the large well protected bay of Taiohae, off the island's main settlement, is a good base from which to explore the interior by rented car. Many years ago an old Marquesan couple, Daniel and Antoinette, retired to the innermost cove (Anse Hakatea) in Tai Oa Bay, on the southwest coast of Nuku Hiva. Visiting sailors were always welcome to their bay, which became known as Daniel's Bay.

Those who are not put off by a tough hike may be tempted to take the trail that leads from the head of the bay to a one thousand foot high waterfall, reputed to be the third highest of its kind in the world.

Ua Huka

This small island lying east of Nuku Hiva is often bypassed although it has a well sheltered steep sided anchorage at Vaipaee aptly called the Invisible Cove as it is easily missed. At the head of the narrow inlet is the island's main village.

Ua Pou

The main settlement at Hakahau has little to recommend, but the mountainous interior of the island is truly spectacular. The typical rock spires that are so distinctive when seen from afar, are even more spectacular seen in close-up.

A useful anchorage, and a good starting point if heading for the Tuamotus, is on the SW side of the island in the Bay of Hakahetau, off the village of the same name. Landing from the dinghy on to the concrete quay can be difficult if there is a swell running.

Kaja in Ua Pou. Credit Andy Wescoat

The Tuamotus

The Tuamotus were until fairly recently rarely visited by cruising yachts, and for very good reason: Navigation among the reefs and atolls even with the help of GPS is a daunting task and calls for a high degree of alertness and vigilance. It is a price some sailors regard as worth paying as these remote atolls fit the image of a tropical destination - turquoise blue lagoons, deserted islets shaded by swaying coconut palms and magnificent underwater scenery with a profusion of fish and corals. However, there are some basic rules to be followed, such as choosing an anchorage carefully and avoiding a long fetch if strong winds are expected or a front is predicted to pass. Most sailors used to cruising in the Eastern Caribbean do not expect the drastic wind changes that commonly occur in this area of the Pacific.

Makemo

Pass Arikitamiro gives access to the main village of Pouheva, located on the northern shore of a wide lagoon; the long fetch and the strong winds making the anchorage both uncomfortable and risky. There is better shelter at the western end of the atoll where Tapuhiria Pass is located. There is some disagreement over the position of the pass, and care should be taken on approach. Access through the pass is quite easy and there is a good anchorage close to an abandoned copra shed.

Tahanea

The uninhabited Tahanea atoll is a nature reserve. There are several passes on its northern side and Pass Manino is considered the easiest to negotiate (provided one's timing is absolutely right). There is a good anchorage immediately to the right of the pass. The lagoon is reasonably easy to cross in good light and there is a good anchorage in the SE corner of the lagoon. The lagoon is a good diving spot with lots of fish, but a species of grouper is affected by ciguatera so you should be careful with the fish you decide to eat. As the lagoon is also known to have plenty of spiny lobsters, this is probably the safer alternative.

Fakarava

Fakarava has a very large lagoon, much of which is taken up by pearl farms. Access is easiest through Pass Tetamanu, on the south side, and there is a good anchorage close to the northeast of the pass. Tetamanu is one of the best passes in the Tuamotus for a drift dive and if it is timed at slack water or to coincide with the very start of the incoming tide, one will have the thrill of virtually flying over the amazing coral formations- a sensation that is akin to watching an underwater film in fast motion.

The large lagoon can become dangerous in unsettled weather, and Pass Ngarue, on its northern side, may be incorrectly charted.

Rangiroa

The large atoll is the most popular tourist destination in the Tuamotus thanks mainly to the excellent diving in the crystal clear water. The main pass Avatoru is close to the village of the same name. Close by to the west is the large (disused) Kia Ora resort with a well-sheltered anchorage nearby. The anchorage can become dangerous in strong winds as the anchor chain will get wrapped around the coral heads. Pass Avatoru is swept by strong currents and in strong southerly or southeasterly winds the ebb (outflowing) current is continuous.

Tahiti

Papeete has one major advantage as due to an active local yachting community its repair facilities are the best between Panama and New Zealand and Australia. There are a couple of well-stocked chandleries and various specialist workshops. Provisioning is just as good, even if the prices are less so, as Tahiti is the most expensive place in the South Pacific.

At the point where Tahiti Nui (Greater Tahiti) meets Tahiti Iti (Lesser Tahiti – the peninsula sticking out to the south like a panhandle) the road passes Port Phaeton, a perfectly protected lagoon and Tahiti's best hurricane shelter.

A couple of kilometers towards Papeete, near a football field, is the Tahiti Yacht Club where visitors are always welcome to enjoy a drink on its shady terrace.

Moorea

Snorkelling the reef in Fakarava. Credit Paul Morris

After the hubbub of Papeete, neighbouring Moorea, only nine miles away, is a world apart. Its natural beauty has been preserved almost intact. The picturesque anchorages on its north coast are still among the most beautiful on the world cruising circuit. Cook's Bay, or more correctly Pao Pao Bay (as Captain Cook never anchored here but in nearby Papetoai Bay) is overlooked by the needle-sharp profile of Mount Mou'a Roa.

Huahine

The least populated of the Society Islands, Huahine is also the least spoilt. The island is in fact split in two, Hauhine Nui (Great Huahine), to the north and Huahine Iti (Little Huahine) to the south, but the channel separating them is blocked by a bridge. The best anchorages are on the west side where there are two passes Avapehi and Avamoa, leading to the main village of Fare. In settled weather it is also possible to use Farerea Pass on the east side that leads into the well protected Maroe Bay.

When approaching Huahine coming from the east, one should give the reefs extending south of Huahine a wide berth as several boats have come to grief here because of the southerly swell and strong onshore setting current.

Raiatea

The main pass, Te Ava Piti, is on the east side and leads to the main settlement at Uturoa. Raiatea is now one of the major charter destinations in the Pacific, its main attractions being the sheltered waters of its lagoon and central location at the heart of the Society Islands with Bora Bora only a short sail away.The entire island can be circumnavigated inside the reef and there are several attractive anchorages, especially on the south coast which is rarely visited by other yachts.

Tahaa

Tahaa shares the same lagoon with her sister island Raiatea. The stretch of water separating them is peppered with coral heads and reefs, but navigation is easy as all dangers are signposted with beacons and buoys.

As there is deep water all around Tahaa it is possible to make a complete circuit of the island. To cater for the numerous charter and cruising boats, even the smallest bay now has its own restaurant and private dock, as well as a large banner welcoming sailors for a drink and a meal. There are some secluded anchorages close to the reef northwest and northeast of the main island.

Weather - French Polynesia

The further south you progress, generally, the stronger the trade winds. There will be an increase in the percentage of the time that it blows from north of east. The vast majority of the time the trade winds will be between southeast and northeast, 15-20 knots. Calms away from land are rare.

Occasionally a depression can develop in, or cross the area. This can bring unsettled squally weather. Tropical storms are unlikely this far west. Gales are rare, although gale force gusts associated with large convective clouds are possible.

Tahiti is 33 miles long and 15 miles wide and therefore it makes a big difference to the wind flow around it. The bigger the islands the more of a local effect they will have on the wind. Sea breezes are likely and the pilot warns of occasional northerly or northwesterly winds that can happen in the early part of the year. This can make passages through the reef difficult.

Weather - Society Islands

Predominantly easterly winds of 15-20 knots, although it will vary between southeast and northeast. The larger islands will have a large influence on the wind, bending it around the high volcanic peaks. Cloud and rain often forms over the islands.

Bora Bora, Niue and Tonga

Bora Bora

The azure blue lagoon surrounding the main island that is dominated by the distinctive shape of Mount Otemanu can hardly be faulted. There is a lot of movement in the main lagoon with fast launches, excursion boats and dive boats. The eastern part of the lagoon is much more tranquil and can be reached by a channel marked with cardinal and lateral markers that winds its way north of the island.

Strict anchoring restrictions came into effect in 2019 in all island internal waterways. The Bora Bora lagoon has been divided into authorized zoned anchorage areas with specific restrictions applying to each. See noonsite.com for advice and further information will be provided by Rally Control.

Niue

Niue is a very strange island indeed, a massive slab of coral that had been pushed up by tectonic activity. Surrounded by sixty foot high cliffs, it has no natural harbours and the only shelter from the prevailing winds is an indentation on the west coast where a number of moorings have been laid for the use of visiting yachts. In settled conditions, this is a safe spot to leave the boat while visiting the island, although the ocean swell is forever present and the constant surge makes landing a very exciting affair.

The Niueans have provided a crane for hoisting dinghies out of the water, but perfect coordination is needed to hook up the dinghy to the waiting strop while trying to get a foothold on the slippery steps.

Tonga, Vava'u

Tonga's northern group of islands has been a favourite cruising destination for a very long time. The strategic location of Vava'u at the crossroads of several sailing routes, as well as the reputation of the main anchorage, Refuge Harbour, as a safe hurricane hole, has not surprisingly turned it into a busy yachting centre. Several charter companies are now based here.

There are about one hundred islands of all sizes, some sprinkled with sandy beaches, underwater caves and plenty of protected anchorages. The entire area provides an excellent opportunity for sailing in sheltered waters.

In spite of its popularity, Vava'u continues to be a most beautiful place. Its tranquil waters are the favourite destination of some travellers of a very different kind - scores of humpback whales that gather here to breed.

Hoisting a dinghy ashore in Niue

Weather - Bora Bora to Tonga

One must now start to take notice of the position of the SPCZ (South Pacific Convergence Zone). It may be marked on weather charts as a dotted line, or actually named. It is a trough of lower pressure and is in line with an area of doldrums. It will go through irregular cycles of building and decline, which will upset the trade winds, but it is rarely dangerous.

The SPCZ becomes of greater concern as it interacts with another system, usually a front or trough from higher latitudes. It is claimed that by studying upper air charts (500mb) an upper air trough may be identified and cruising sailors will be able to pick up a potential storm before the forecasters do. Easier to do in retrospect than to predict! The further north you are, the less likely there will be a problem, but any low shown on a synoptic or forecast chart should be taken seriously.

Turning south to Tonga, the wind should increase slightly and stay in the southeast or east with a lower chance of northeast winds.

Tonga to Fiji

With approximately twenty-four days available between the arrival in Vava'u and the rendezvous at Musket Cove, one should plan on spending between five and seven days in Vava'u before resuming the voyage.

Fiji is protected from the east by a string of extensive reefs - once an impenetrable natural barrier that separates Melanesia to the west, from Polynesia to the east. Passing that difficult obstacle was until fairly recently a major challenge and many vessels, both small and large, regularly ran aground and were lost in that maze. While the challenge is still present, the hazards are much more manageable although even with the help of GPS and radar, a high state of alert is highly advisable.

Beyond the reefs is the Koro Sea, a large body of water that extends between Fiji's main island of Viti Levu to the west and the Lau Group and its reef

systems to the east. There are several islands facing Viti Levu's east coast and stopping at some of them is possible as there are several well-sheltered anchorages.

The main pass leading to the Koro Sea is Oneata, and as this is the main shipping channel, it is wide and relatively well lit. Two other passes, Lakemba and Nanuku, are further north.

It is planned to clear World ARC at Vanua Balavu in the Lau Group where a cruising permit will be issued.

Clearing in at Savusavu on Vanua Levu Island is useful if planning to spend some time in Eastern Fiji or if planning to take the shortest route to Western Fiji and Musket Cove. Levuka on Ovalau Island is more convenient if planning to stop at the capital Suva, although in that case it is just as easy to go straight to Suva and clear in there.

Access to most islands in the Lau Group is controlled by a cruising permit. Continuing west from Savusavu one sails north of Viti Levu, a route which is indeed much shorter than the southern alternative.

In recent years, the Fijian authorities have returned ownership of inshore waters to the village communities and the well established custom of paying one's respects to the Village Chief must be strictly observed. The traditional gift (Sevusevu) of chewing tobacco may now be substituted with a gift of money. Normally this need not amount to very much but in places frequented by cruising yachts, especially in the western island groups of Yasawa and Mamanuca, the sums demanded can be quite high.

Sailing south of Viti Levu allows for a short stop at Suva, a vibrant colourful city with an attractive cultural blend of Fiji's two main ethic communities, Fijian and Hindi. On the way to Musket Cove there are good cruising opportunities in the Kandavu Group and also at Beqa Island (pronounced Mbenga). A recommendation is to stop at Daku village on the north coast of Kandavu where the local community has decided to take matters in hand to protect the environment, grow organic food and welcome visitors in the traditional way. Daku Bay is well protected but should be entered with care as there are a few isolated coral heads.

Closest to Musket Cove are the Yasawa and Mamanuca Islands - ask first at Musket Cove where they can obtain the latest information as to which islands are advisable to visit.

Vanuatu, Tanna

To make visiting sailors more comfortable and encourage them to stay longer at Port Resolution, the Chief of the neighbouring village had built a large hut on a headland overlooking the anchorage to be used as a shore base by sailors. The airy clubhouse is now adorned with flags, club burgees and other mementoes left behind by visitors.

Weather - Tonga, Fiji and Vanuatu

Fiji is on the edge of where the SPCZ is likely to be found. The trade winds here are influenced by high pressure over Australia. If the South Pacific high is ridging to Australia, then the trade winds will stay to the east. However, if high pressure has built over Australia (a usual pattern in the Australian winter), then the trades will be more to the southeast or even the south southeast. This is one of the reasons for the development of the SPCZ as southeast wind converges with more easterly winds.

Locals in Vanuatu

Vanuatu to Mackay

Through the Barrier Reef to Mackay

Arrival in Mackay

The following passage notes are provided by Tony Martin of *Tam Lin of Gloucester*, based on personal experience during World ARC Pacific 2023.

The Hydrographers Passage

The route from Vanuatu to Mackay passes through the Great Barrier Reef using the Hydrographers Passage.

Access to the Hydrographers Passage is via the Bond Passage. This entry is well marked with a combination of leading lights, day shapes and cardinal marks.

The Bond Passage is over 1NM wide at its narrowest point and can be safely navigated day or night in most weather conditions – that said, be aware that the ebb tide can run through this pass at up to 4kts at spring tides, and entering in a strong south westerly wind against the tide may generate overfalls in the entrance channel.

Once through the Bond Channel, it is approximately 100NM to Mackay Marina. The route through the Hydrographers Passage is well marked, has leading lights and is heavily used by shipping.

Alternative Approach to Bond Entrance

If there is large south easterly oceanic swell running on your approach to the Bond entrance, following the main channel will mean sailing with a large swell on the beam.

The alternative is to approach from a south easterly direction, leaving Maschke Shoal to starboard and Thompson Shoal to port and then turn into the main channel. The swell should be on the port aft quarter until you are well inside the Bond Passage.

Heading for Mackay – Bramble Passage

If there are strong southerly winds, an alternative option to the Hydrographers Passage is a smaller pass - the Bramble Passage.

The Bramble Passage does not have leading marks or lights, however it is around 0.5NM wide at its narrowest point, has plenty of depth and most importantly is well charted on both Navionics and Australian Hydrographics Office charts.

Note that since this is a narrow channel, there can be a strong current running through the pass. The streams follow the ebb/flood as with the Bond Passage, and the rates appear to be similar in my experience.

Once through the Bramble Passage, the sea state is likely to increase as you exit the shelter of the local reefs, however the onward passage to Mackay is relatively simple, although with a strong southerly component, you are likely to be hard on the wind.

Our Experience...

During the 24 hours approaching the Bond Entrance, we were experiencing strong south-south easterly winds, giving 30+kts winds and a large swell of 4-5m on the stern quarter. We made the decision to head inbound via the alternate route, heading inside Maschke Shoal and arriving at the Bond entrance at around 2300 (approx. LW-2.5), comfortably entering the channel through the reef under No.3 headsail only.

The sea state eased considerably once we passed through the narrows, leaving just locally generated short period wind waves of perhaps 1m at most.

We then headed onwards toward the Bramble Passage in calm waters, although the winds remained strong south-south easterlies 20+kts.

As we approached at 0200 (approx. LW+1) we followed the waypoints with crew on deck as spotters, looking for signs of the reefs either side and double checking our position via a Navionics on an iPad. At no point did we spot any breaking waves or indications of the reefs and the depth remained comfortably stable throughout.

The push down to Mackay was quite lively, with us close hauled all the way. We approached the shipping channels around dawn (which had a constant stream of bi-directional traffic) however with a little bit of careful ducking and timing we crossed these relatively easily and we were then able to pass both islands comfortably to starboard before the final stretch into Mackay.

Tony Martin, Tamlin of Gloucester

Weather - Vanuatu to Mackay

The prevailing wind is the south east trade wind with the pilot charts showing that for over 50% of the time it is at 13-18 knots. If we take into account the time the wind is between south and east, it is the overriding direction.

As you approach the coast, the wind direction is likely to veer more southerly. The weather will be influenced by Australia and the position of the high pressure over the continent The chance of gales increases, but is still low. The current that has continued across the Pacific splits, with one part heading north west and the other turning south to become the east Australia current.

Mackay to Darwin

The cruising leg from Mackay to Darwin is a unique opportunity to experience one of the natural wonders of the world - the Great Barrier Reef. A highlight of the area is the Whitsunday Islands located between the mainland the reef.

Mackay is the gateway to the Whitsunday Islands, an archipelago of 74 islands varying from luxury resorts with all amenities to nature reserves. The clear waters abound in colourful tropical fish, giant clams, stupendous coral formations and provide divers and snorkellers with an unequalled view of an ever changing underwater scenery.

Most of this part of the Great Barrier Reef will be sailed in the wake of Captain Cook, who passed through here in 1770, charted and named land features in this entire area, and nearly lost his ship, *Endeavour,* when it ran onto a reef at night. Fortunately, a large piece of coral got lodged in the hull allowing the crew to nurse the ship into a nearby river where repairs could be carried out. This is now the site of **Cooktown**, set on the banks of the Endeavour River. Claimed to be the site of the first European settlement in Australia, the small town is also the northernmost town in Queensland. It is well worth an overnight stop.

Suggested Itinerary

Week 1 – Cruise Mackay to the Whitsunday Islands and Airlie Beach

Week 2 – Cruise Airlie Beach to Cairns

Week 3 – Passage Cairns to Cape York

Week 4 – Passage from Cape York to Darwin

Crews may enjoy the short distances and day sailing around the Whitsunday Island and Airlie Beach but once it is time to head north there are many passages to be planned. From Airlie Beach to Cairns you will be making ground north but there are still many excellent island anchorages and towns to be visited.

The sail from Cape York is straightforward and there are two ways to reach Darwin, most will sail non-stop from Cape York, but for those adventurous boats with sufficient time there are many excellent anchorages to be found on the mainland. The decision is either to visit Gove and subsequently transit the "hole in the wall" through the Wessel Islands or simply sail non-stop to the north.

Nearer Darwin boats have another choice; the easier but longer route that passes west of Bathurst Island, or a shorter route through the Dundas and Clarence Straits that saves over 150 miles. The latter route is sometimes avoided by cruising yachts as the straits are swept by strong tides and the intricate route through a maze of reefs and small islands makes for challenging navigation, although the route itself is marked by buoys and lights.

In order to be able to sail this route one must catch the right tide and that means arriving at the northern entrance into Dundas Strait at exactly the right time. Ensure you have a copy of Queensland tide tables onboard for reference.

Weather - Mackay to Cape York

The July, August, September period is the ideal time for cruising north, with prevailing SE winds, mild weather, and usually little rain. The winds are normally strong south easterlies, occasionally blowing at 25 to 30 knots, which makes for some exhilarating sailing in the generally sheltered waters.

All the usual weather services are reliable, and the Australian Bureau of Meteorology is as good as you will get. bom.gov.au/ is excellent, and provides real time radar and observations, as well as a host of prediction services. VHF services along the coast relay marine weather forecasts at set times every day.

Navigation is easy but outside the marked channel the usual caution exercised when sailing in coral waters should be applied. Night anchorages should be picked carefully and are normally safer in the lee of islands or headlands. Anchoring in the lee of a reef is generally safe in daytime but can become uncomfortable at high tide.

Two cautions to be aware of when selecting anchorages at this time of the year along the North Queensland coas:

- If they occur, light afternoon easterlies or north easterlies often change to south east or south west during the night and early hours of the morning at this time of year.
- Predicted stronger south westerlies often blow their hardest in the early hours of the morning, and ease off by early afternoon. As a result, be cautious about selecting an anchorage exposed to the south east or south west.

Weather - Cape York to Darwin

There is always a steady easterly wind blowing through the Torres Strait and, backed by a strong west-setting current. Boats are spewed into the Indian Ocean like corks from a champagne bottle.

The change from the dark blue waters of the Pacific to the dull green waters of the Arafura Sea is abrupt and unexpected. Even the wind feels different after the boisterous trade winds experienced along the Great Barrier Reef. The light winds almost feel like having a different texture and has the distinctive feeling of entering not just a different ocean, but a different world.

Tides

All tidal information is available on the Australian Bureau of Meteorology bom.gov.au under the Marine & Ocean tab, and it is as good as you can get. It is essential that you check the Queensland tide tables to your passages carefully.

The rather excessive 6.5m tidal range of Mackay rapidly decreases to 3m within about 50 miles, and so most of the tidal problems are reduced by the time you get to the Whitsundays. However, within the Whitsundays, be cautious of strong currents and turbulent water in the narrow passages at Solway Pass, Hook Pass, and in front of Pinnacle point.

Going around the top of Cape York through Torres Straight is a challenge with current, rather than tidal height. In tide books, and the Bureau of Meteorology website, there are current charts for specific locations. When you get to Darwin, the tidal range is up to 8m, and consequently the marinas in Darwin are lock gated.

Marine Park Zoning Maps

It is a requirement of all boats within the bounds of the Great Barrier Reef Marine Park Authority (GBRMPA) to carry Marine Park Zoning Maps. These maps are freely available in all marinas and will be distributed to the World ARC fleet in Mackay. The maps include important information that must be observed in the protection of Marine Parks.

- Refer to the appropriate zoning maps
- Observe all marked buoys and signage
- Be aware of no fishing zones
- Be aware of no anchoring zones

Whales

Mid-July through to mid-September is the peak of humpback whale season along this section of the coast. The whales are now very prevalent. Be aware of the restrictions on approaching whales to avoid prosecution. Check out gbrmpa.gov.au/visit-the-reef/responsible-reef-practices/caring-for-the-reef

Fishing

If you intend catching fish, you must have a GBRMPA zoning map for each area, and understand the restrictions. There are a few localities that are completely out of bounds, and a lot of areas with no fishing, crabbing or oystering. Handouts available at the Mackay Marina Office. Check out gbrmpa.gov.au/ and in particular gbrmpa.gov.au/zoning-permits-and-plans/zoning/zoning-maps for the zoning maps.

Meeting the locals at Cape Hillsborough

Crocodiles

Crocodiles are rare south of Townsville, but not unheard of. Be aware of the dangers and take precautions in the water. In general, swimming, diving and snorkelling in clear waters, especially on the offshore reefs is considered safe if normal precautions are observed.

North of Townsville is crocodile country so swimming should not even be considered - in fact there is a good chance of seeing crocodiles sunning themselves on the shore. Swimming or even paddling in shallow water from Townsville to Darwin should be avoided because of the real danger of salt water crocodiles (salties).

The key to being crocodile aware is understanding their preferred environment.

- Crocodiles live in mainland rivers/estuaries and prefer brackish/muddy waters.
- Rare to be seen in clear waters, sandy beaches or away from the mainland.
- It is advised not swim or dinghy in creeks or tidal rivers.

Yachting Events

Be aware of Airlie Race week (usually mid August) and Hamilton Island Race (normally late August). There are a lot of boats arriving in the Whitsundays prior to these events, so if you want marina berths at Abel Point Marina, Port of Airlie, or Hamilton Island Marina, you should book in advance.

Inshore Shipping Channel

The two-way inshore shipping channel inside of the Barrier Reef is not a separation zone. Pilots of ships using this channel have serious concerns over yachts. Ships regularly transit at 20 kts and are constrained by their draft. It is necessary to keep a listening watch on VHF Ch16, be correctly lit and keep to the edges of the channel.

Prawn Fishing Fleets

Prawn fishing fleets work inside the Barrier Reef. They fish anywhere, even in the two-way Shipping Channel. These fishing vessels carry very strong lights and are unable to see other vessels and are most likely on autopilot while their crew work on deck. They may move very fast while shooting nets, stop suddenly and change direction. It is necessary to give plenty of clearance when passing astern of them as their nets often drag well astern. The fleets anchor up during the day and this may often be the sign of a good anchorage.Prawn fleet mother ships work the entire coast and monitor VHF Ch16. They will provide fuel and may offer other assistance if requested. The vessels include `Cairns Express', `Emu Bay', `Heron Bay' and if heard on the radio, it may be possible to call them to ascertain the whereabouts of the prawn fleet.

Anchorages

In general, the small round islands of the barrier reef will provide shelter from the south east Trades if anchoring to the north or north west of the islands. However, if the wind is strong there will probably be a lively cross swell. There is better protection offered by north facing bays and indentations or east to west lying reefs. However, these places often involve negotiating coral heads (bommies) on entering. Normal tropical pilotage rules apply - approach reef anchorages by mid afternoon and preferably from the west, blue is deep, brown is coral and light blue is sand.

Passage Planning Notes

Detailed local information will be provided to skippers in Mackay, but these are some of the highlights of the Mackay to Darwin route.

Mackay to Whitsunday Islands & Airlie Beach (60NM)

This area is the jewel of the Great Barrier Reef and abounds in excellent anchorages, so refer to any one of the guide books but whatever you do, don't miss Whitehaven Beach, Nara Inlet, or Butterfly Bay (for snorkelling or scuba).

If you need crew to fly in or out, there is excellent service from Hamilton Island Airport. From Airlie Beach, there are bus line services, and connections to Proserpine Airport.

Whitehaven Beach, Whitsunday Islands. Credit iStock

Whitsundays to Bowen (30NM)

This is really an extension of the Whitsundays, with numerous islands and mainland bay anchorages.

Gloucester passage is quite safe for yachts, even at low tide, and well-marked. There are moorings in front of Glousester Eco resort. Another beautiful anchorage at Bona Bay on Gloucester Island.

Bowen is a charming old town with an excellent public pontoon in the small boat harbour next to the North Queensland Cruising Yacht Club, for short stop, or take a mooring, or anchor out.

Bowen to Townsville & Magnetic Island (90NM)

The coastline suddenly changes north of Bowen, with nearly 100 miles of low flat country punctuated only by the massive Cape Upstart, and Cape Cleveland just before Townsville.

There is only one island anchorage, at **Holbourne Island**, which should be treated as a day stop for a fish or dive.

Cape Upstart provides an excellent south east anchorage, but can be a trap if the wind turns south

west. There is quite a thriving local community along the western side of the cape, but no services. Access to the mainland is through the tidal Molongle Creek, where there is a basic general store.

Cape Bowling Green is a low sandy spit, and is only visible from a couple of miles out. Like Cape Upstart, it points north, with exposure to the south west. It is an excellent anchorage and place for a beach BBQ in suitable conditions. There is an excellent dive site on the wreck of the Yongala off Cape Bowling Green.

There are marinas at both **Townsville** and **Magnetic Island**, and an excellent anchorage at Horseshoe Bay on Magnetic Island, as well as numerous other bays around the island. If you stop at Magnetic Island, it is easy to visit Townsville via bus and ferry. All services are available at Townsville.

Townsville to Cairns (150NM)

The coast changes again, with plenty of islands, anchorages, and mountainous rainforest.

Rattlesnake Island is a bombing range for the Royal Australian Air Force. Best avoided.

Palm Island is an Aboriginal community. You should not stop here or attempt to go ashore unless you have been specifically invited by a community member, as you may cause offence.

Fantome Island is the first suitable anchorage north of Townsville, and quite attractive. If you intend fishing, check your GBRMPA maps, as half the island is in the green zone, no fishing is allowed.

Hinchinbrook Island - east side. If the weather is suitable, go up the eastern side of Hinchinbrook and stop at the beautiful Zoe Bay. Anchor in the south west corner of the bay near the mouth of South Zoe Creek, and dinghy ashore to the mouth of the creek. Here you will find a National Parks camp site, and access to the Hinchinbrook walking trail. It is only a 15minute walk up to Zoe Falls water hole. Better still, take a backpack, food & water, and hike right up into the mountains along the innumerable rock pools and waterfalls of Zoe Creek.

Hinchinbrook Channel is a very scenic journey between the mountains of the Cardwell range and the mountains of Hinchinbrook Island, through a mangrove channel. It is an xcellent place if you want to fish or catch crabs. Crocodiles are very common in this area, so do not swim.

Cyclone Yasi devastated Cardwell, Dunk Island and Port Hinchinbrook Marina in 2011, and there has been little rebuilding.

Johnson River, **Gladys Inlet**. The Johnson river is quite navigable to Innisfail, where you anchor right in the middle of the town. The entrance has a shallow sand bar, where the depth of water is little more than tide height, but causes no further problems once across the bar.

Russell Island is a delightful place to stop for a swim and snorkel with excellent reefs, but is only suitable as an overnight anchorage in good weather.

Fitzroy Island has a sizeable tourist resort, and is a popular place with boats from Cairns. The anchorage can be crowded. **Turtle Bay** on the mainland is only a few miles from Fitzroy island and is a good alternative if there is a chance of the wind becoming south west.

Yarrabah in Mission Bay is an Aboriginal community. You should not anchor or go ashore there unless specifically invited by a local community member, as you may cause offence.

Cairns to Cape York (450NM)

Cairns is a major city, with both marina and pile berths. This is your last major resupply point before departure for Darwin. You will be able to purchase items at Cooktown, Thursday Island, and Gove (Nhulunbuy), but be aware that supplies are unreliable and expensive in these places.

Port Douglas is a busy base for excursion and dive boats. Marina Mirage has all facilities but it is also possible to continue upriver and anchor in a secure and scenic spot. The town is charming and popular and has many excellent restaurants and bars.

Lizard Island is one of the highlights of this cruise, approximately 50NM north of Cooktown. The island is a nature reserve and strict rules apply. The recommended anchorage is in Watson's Bay, close to an exclusive resort. Giant clams and manta rays are to be seen everywhere, while a visit to Cod Hole will bring the snorkeller face to face with the massive Potato Cod.

Flinders Island. Past Cape Melville a stop at Flinders Island should not be missed. There is a well sheltered anchorage in Owen Channel, between Flinders and **Stanley Islands.** From here to Cape Direction it is best to stay in the main shipping channel as there are many isolated reefs on both sides. From Cape Grenville the channel runs almost straight north to Cape York, and the northern tip of Australia, then turns west-north-west towards the Torres Strait and the Indian Ocean.

Anchorages include:

Morris Islet is rated to be the best anchorage along this part of the coast in south easterly winds.

Night Island has fair protection from south east Trades. Anchor off beach on west side.

Portland Roads has good holding in mud in lee of rocky island. May have swell in south easterlies.

Cape Grenville. Margaret Bay offers protection from south east trades.

Shelburne Bay has good protection from south easterlies in lee of Rodney Point.

Turtle Head / Escape River. The bar has less than 1.8m at LWS. Anchor in lee of island in the area near pearl company jetty.

Shallow Bay Albany Passage. It is possible to anchor opposite Somerset Bay off the pearl farm in less tide. After the Passage Shallow Bay has good holding.

Mount Adolphus Island. Blackwood Bay has a good anchorage in south east Trades.

Possession Island. Anchor off the beach on the west coast with protection from easterlies, but could suffer from beam swell.

Cape York to Darwin (750NM)

There are two main passages used for rounding Cape York. The northern passage is Prince of Wales Channel and is the main shipping channel. It is well marked and deep. Endeavour Strait is less frequented by shipping, wider and shallower but safe for sailing boats and the shorter route when coming from Cape York.

The tides in the Torres Strait often run diagonally across the course sailed.

Gove Harbour (Nhulunbuy) is an opportunity to get supplies, although they may be expensive.

Arnhem Land is Aboriginal land and permission is required in advance to land. Heavy fines are imposed on contraventions of the law in regard to fishing, disturbance of the local people and interference with the natural environment. It is not legal to enter villages without invitation. In practice, yachts calling on VHF Ch16 on approach may be given local permission to anchor. Providing alcohol is in contravention of local laws.

Wigram Island. The bays on the north coast are part of the English Company Islands and are "off limits without permission".

The Hole in the Wall. This passage avoids the long trip around the outside of the Wessel Islands, but careful tide planning is required as the Gugari Rip runs at up to 9kts. The channel is 64m wide and 9m deep.

Rarinkala Island. There are sheltered anchorages on the western side. The coast to the Cobourg peninsula is poorly surveyed and there are fishing operations of all types.

Somerville Bay (NW Croker Island). A good anchorage close to the eastern end of the bay.

Port Essington. Protected waters and tides of 2 to 2.5m. Care should be taken on the approach.

Van Diemen Gulf and the Dundas Strait Plan to cover the 64NM in one tide. Aim to reach Cape Don four hours before Darwin high water. The south-south-east tide stream runs Darwin HW-3 to HW+1, with 3.5 kts at springs.

There are various shoals to be avoided on this stretch, so pass east of Abbott Shoals, then sail to the next waypoint east of Rooper Rock close to the entrance into Howard Channel. This is the recommended shipping channel and is therefore better lit and easier to navigate. The favourable stream starts here at Darwin HW+4 to HW-2, so eight hours of favourable current.

Adam Bay. 2NM north of Escape Cliffs and west coast of Cape Hotham. Anchor in mud approx 5NM short of and to the east of Howard Channel which is lit for commercial traffic. Australian chart 27 shows the preferred course via the Middle Passage for the approaches to Darwin.

Port Darwin

Sunset in Darwin

The capital of Australia's Northern Territory is a modern city. Although the Territorians, as the locals are referred to, are keen to project Darwin's reputation as a frontier town, it is in fact a pleasant friendly place, with pastel coloured buildings, wide tree-lined avenues and a slow measured pace perfectly adapted to the usual 35°C temperatures.

All yachts docking at marinas in Darwin are required to undergo hull inspection and treatment. When arriving in Darwin. You should contact Northern Territories Aquatic Biosecurity, with 24 hours notice, to arrange the hull inspection and treatment.

NorthernTerritories Aquatic Biosecurity

aquaticbiosecurity@nt.gov.au +61 889 992 126

If arriving in with the World ARC fleet, hull inspection and treatments will be co-ordinated by Rally Control. Inspections take place at the waiting dock of Cullen Bay Marina, Monday to Saturday.

The treatment is a simple process and involves the introduction of biocide to all raw water systems onboard followed by a standing time of 10hrs.

During this time no raw water systems onboard are to be used (toilets, showers, engine intakes etc). Yachts will be treated on the dock or at anchor in Fanny Bay Yachts will be treated on the dock or at anchor in Fanny Bay. Expect treatments to take place either early morning or late evenings.

The South Indian Ocean

Weather - Darwin to Lombok

In Darwin at the end of the Australian winter, indigenous Australians know this time as Malaparr, the cooler middle part of the dry period, with the humidity rising from the end of August.

The predominant wind is east or south east, 10-15 knots, although Darwin itself is more variable with some sea breezes from the north west. Once clear of the land, expect east-south east increasing a little as we move to the west. Currents are generally favourable with a south west component. Close to the land the wind will become more variable and showers/squalls can be expected even though it is the dry season. At 8°S Lombok has a dry season extending from July to September.

A mosque on Lombok.

Lombok

Medana Bay is a natural safe harbour, protected from the prevailing major winds and waves. It is on the preferred sailing route to the eastern isles, yet within easy day sailing from the Gilis, and short trips to the Sekotong peninsula and surrounding islets.

Compared to neighbouring Bali, to the west, Lombok has retained a more natural, uncrowded and undeveloped environment, which allows visitors to enjoy its relaxed pace and the opportunity to explore the island's unspoiled, spectacular natural beauty. Often likened to Bali, but with more beaches and less tourists. An international airport opened in late 2011 which has seen an increase in visitors, but the island maintains the charm of an area still discovering tourism.

The island's indigenous Sasak people are predominantly Muslim, whilst a minority Balinese Hindu culture remains in Lombok; the mixture of religious cultures add to the fascination of the island. The Gili islands are well known, perhaps specifically Gili Gede less so; ambitious plans to build a small marina are in place, although for now mooring buoys and a small jetty will serve the fleet during their visit.

Cocos Keeling

Anchorage on Direction Island

Direction Island on Cocos is unique in that it feels as if it belongs to cruising sailors. Because of its remoteness this Australian outpost in the South Indian Ocean, it has gained the affection of all long distance cruisers who call there. The authorities have made a visible effort to welcome sailors, having cleaned up the island, installed a barbecue pit, toilets and built an open sided hut with tables and benches. There is even a phone for free local calls, and two large water tanks to use for a shower or to do one's laundry. The trees near the so-called clubhouse are adorned with hundreds of mementoes of boats that have passed through - among them some famous names.

There are two inhabited islands, Home and West Island. Home Island is closest to Direction Island and is easily reached from there by a large dinghy. There is a regular ferry that crosses the lagoon from Home to West Island. This is the main settlement on Cocos, with police, clinic, post office, library with internet access.

Mauritius

After the tranquility and slow pace of Cocos, the noise and constant traffic of Port Louis, the busy capital of Mauritius, can be almost overpowering.

Cruising opportunities around the island are few, but those who wish to get away from Port Louis will find a good anchorage at Grande Baie in front of the yacht club building. There is an eight foot depth restriction in the channel leading into the bay.

Botanical Garden, Mauritius

Touring inland Reunion

Weather - Lombok to Cocos to Mauritius

September and October is the change of season from Southern Hemisphere winter to summer. The ITCZ will move south to be south of the equator during this time. The trade winds should increase to 15-20 knot, predominately from the E or SE and the Cocos Islands are within the trade wind band.

The trades extend northwards to the ITCZ or equatorial trough. The ITCZ can move close to the Chagos Islands, bringing squalls and winds from other directions than those expected from the trade winds.

Heading towards Mauritius, the trade winds should strengthen again to 15-20 knots, possibly to 25 knots from the south or south east. How much they strengthen and the direction will depend on the position of the sub tropical high pressure. The average position at this time is about 30°S 75°E at 1024mb, however it will migrate and may split in two. The further east the high, the more east or even north east the winds will become. If the high splits or moves west, the winds will be more from the south east.

Reunion

In spite of their shared history, as both islands were originally colonised by French settlers who started the sugarcane industry, neighbouring Reunion could not be more different from Mauritius. Reunion is a department of metropolitan France, ensuring that this island in the midst of the South Indian Ocean remains a part of France.

The mountainous interior of Reunion is dominated by the remains of three huge craters called "cirques" whose sheer walls rise to well over 2,000 metres. The volcanic scenery is quite breathtaking and the best way to appreciate it is to go on one of many walks, crisscrossed over the island by several marked paths.

Madagascar

Including the large island in a South Indian Ocean cruise of limited duration is no easy matter, primarily because the only suitable place to spend any length of time in a protected area is Nosy Bé, off the NW tip of the island. There are frequent flights from both Mauritius and Reunion to the Madagascan capital, Antananarivo. Once there, it is easy to plan a trip that takes in most of the island's main attractions, including its wildlife.

South Africa, Richards Bay

The well protected area of the large harbour where the Zululand Yacht Club and Tuzi Gazi Marina are located is an excellent place to relax after the long voyage across the South Indian Ocean. While this industrial town has few attractions in itself, the proximity of Hluhluwe-Umfolozi Nature Reserve, one of the largest game parks in South Africa, is a great temptation. Also, within easy reach are the extensive St. Lucia wetlands as well as the Phinda game reserve.

Weather - Mauritius to Richards Bay

Although the sub tropical high pressure will often ridge to South Africa, at other times it will be displaced by systems to the south. As you move out of the tropics, the trade winds become more variable and the chance of a depression from further south increases. Once you pass the southern tip of Madagascar the winds are likely to become more variable, although predominately south through to south east and north east.

Approaching the west side of the Indian Ocean basin, the south flowing western boundary current will be met. On the route, this starts as the equatorial current that turns south to form the East Madagascar Current. This joins the Mozambique Current and is then known as the Aghulas Current near South Africa. Initially this helps, but there is a need to cross the current to get to South Africa.

At times the Aghulas Current runs at 5 knots making this a dangerous stretch of water when the wind is against the current. Large ships have been lost in these conditions as the tail of a southern ocean storm can reach these latitudes. This is going to be of significance between Reunion and Richards Bay and then around the coast to Cape Town, potentially the toughest leg of the whole voyage.

Approaching Africa, stronger, more variable winds increase in frequency. As you move into the summer months, depressions (heat lows) will form over the land which will sometimes move over the sea. Weather systems will develop and change quickly with the additional heat brought south by the current, the cold southern ocean a few hundred miles to the south, and a large continent heating up to the west.

It is important to watch for transient lows that may deepen rapidly in the Aghulas current. It is of great importance not to cross the current with a strong south-south west wind as the seas quickly become dangerous. The most likely time for a south west wind is with the passage of a cold front from a Southern Ocean storm.

Richards Bay to Cape Town

World ARC arrivals in Richard's Bay

The looming challenge of the long haul around the southern tip of Africa to Cape Town is a daunting prospect and while some sailors deal with it by trying to get it over as soon as possible. Others prefer to take their time and enjoy first what South Africa has to offer.

With good planning and a bit of luck the approximately 900NM from Richards Bay to Cape Town can be quite easily negotiated, and scores of small boats do it every year without any problem.

The main culprit is the fast-flowing Agulhas Current that sweeps parallel to the coast at rates between three and five knots. The strongest rates are along the 200 metre contour, which can be as far as 60NM offshore or even further, but the effects of the current can be felt even relatively close to the coast.

Sailing around the bottom of Africa is dependent entirely on the weather. If you are unlucky and conditions are not right you simply won't get anywhere. The one redeeming factor is that while the weather can indeed be worse than almost anywhere else, it is generally fairly predictable. On a synoptic chart, the lows and accompanying fronts marching up from the southwest look like beads on a string.

As the system gets closer, the wind swings into the south west and the barometer starts to rise. Once the front has passed, the wind backs into the south east and continues to back slowly to north east. When the barometer starts falling again, you know that the next front is on its way, so it's high time to look for shelter. The gap between lows can be anything from 36 hours to five days.

The section between Durban and East London is the most difficult stretch along the entire South African coast: 250NM with absolutely no shelter along the aptly called Wild Coast. This is certainly no place to be caught out by those infamous southwest winds generated by a low coming up from the Southern Ocean. Combined with the strong current flowing against the wind, this causes very rough seas that can overcome yachts and occasionally huge tankers as well.

Distances

Richards Bay to Durban	85NM
Durban to East London	255NM
East London to Port Elizabeth	135NM
Port Elizabeth to Mossel Bay	75NM
Mosel Bay to Cape Town	45NM

Durban

The short leg from Richards Bay to Durban is normally the easiest. Few boats choose to bypass Durban, reputedly the busiest port in Africa and a favourite seaside resort among South Africans. Visiting yachts are normally directed to Durban Marina which is associated with the Royal Natal Yacht Club and the Point Yacht Club. Repair facilities are the best outside of Cape Town and the large town has a lively cultural life.

Durban is a good place to wait for the right conditions to tackle the 250 miles to East London, the next place offering shelter. Although temptingly located along this route, Port Alfred is not recommended as the entrance is encumbered by a bar over which the swell breaks heavily.

East London

The narrow river entrance into East London is easily negotiated as the outflowing current of the Buffalo River is not strong. Visiting boats normally dock near Latimer's Landing located on the north bank (right hand side going up) just below the first road bridge. The East London Yacht Club clubhouse is on the same bank, right by the harbour entrance.

Port Elizabeth

Set in the western part of Algoa Bay, this is the largest city in East Cape Province and is located approximately halfway between Durban and Cape Town. Port Control should be contacted before entering and will direct arriving yachts to the small marina run by the Algoa Bay Yacht Club located in the south west corner of the harbour.

Port Elizabeth is a good base from which to explore several nature and game reserves.

Port St Francis

Located some forty miles west of Port Elizabeth across St Francis Bay the small marina may be useful if shelter needs to be found at short notice. However, entry should not be attempted if there is a high swell running and the narrow entrance between the two breakwaters may also be difficult to handle except in settled conditions.

Knysna

Set on the shores of Knysna Lagoon, access to the sheltered waters between the high cliffs of The Heads can be a daunting experience. The best time to enter is one hour before high water, in daytime and only if there is no strong onshore wind. Leaving Knysna Heads can be even more difficult than entering and must be well timed to coincide with slack water.

Mossel Bay

The last recommended stop before Cape Agulhas lies forty miles west of Knysna. The small Mossel Bay Marina occasionally experiences surge and the use of a stern anchor is recommended. Mossel Bay is the last convenient stop before Cape Agulhas which is 100 miles away. The effects of the Agulhas Current are less noticeable from here on and while the weather should still be watched carefully, the worst has now been left behind.

Cape Town

Well worth taking advantage of is a concession made by South African Customs to visiting sailors is that any tax paid on equipment, material or charts (but not labour or consumables) bought in South Africa will be refunded in full. Originals of all invoices and bills should be kept and submitted to Customs in Cape Town before departure who will arrange for a refund to be paid into the bearer's account.

Cape Town is a perfect base from which to explore as much of South Africa as time will permit.

Weather - Richards Bay to Cape Town

The weather is very dependent on the positions of the high pressure in the South Indian Ocean and the high in the South Atlantic. At times these will ridge together and at other times there will be a trough between the two, with the chance of a depression moving north to affect the area.

The Aghulas Current follows the coast (with a small inshore area of light currents, sometimes offering a counter current) and must be taken into account. Mean speeds of 3 knots with peak speeds of 5 knots are to be expected and this current is considered to be one of the strongest in the world. Local weather forecasts should be sought as this has proven to be a dangerous coast. Not just for yachts, but also large shipping caught in the Aghulas Current with a strong south west wind.

Approaching Cape Town the wind is often from the south east and may blow strongly for a number of days. In the Bay of Cape Town it will often be calm overnight with the south easterly wind starting suddenly during the morning, blowing around the east side of Table Mountain.

Table Mountain from V&A Marina, Cape Town

Cape Town to Brazil

The French have a term for finishing a good meal with a tasty morsel that is kept, "pour la bonne bouche", as a last bite. The final stages of World ARC should feel the same as weather conditions in the South Atlantic Ocean are usually the best to be experienced on a world voyage with steady south east trade winds, uncomplicated navigation and long stretches of pleasant ocean sailing.

The threatening weather systems that roll up from the Southern Ocean to blast the South African coast will be quickly left behind, squalls are far less common than in other oceans and tropical storms are virtually unknown.

Favourable trade winds should be picked up soon after leaving Cape Town and normally they should last all the way to the Caribbean. Along the coast of Northern Brazil, a favourable current will speed boats on their way and even the crossing of the equator should have little of the typical doldrums weather as the Intra Tropical Convergence Zone is at its narrowest at its western extremity.

World ARC fleet in Cape Town

Namibia, Walvis Bay

The Namib Desert stretches along the Atlantic coast of Namibia, with few harbours. Walvis Bay (named after whales) is Namibia's principal port, and a safe and more pleasant stop than Luderitz.

From the town, there is easy access to game parks and abundant bird life, ocean provisioning is good and surfing, sandboarding and kite surfing are popular activities. Walvis Bay is considered as the start of the 'Skeleton Coast', famous for morning fogs.

Namib Desert near Walvis Bay

St Helena

It is always a really good feeling to arrive in a place where visiting sailors are not only warmly welcomed, but their presence makes a visible contribution to the local economy.

Her isolation is probably St. Helena's main attraction and the lack of frequent flights means that only determined travellers actually set foot on this remote island lost in the vastness of the South Atlantic. The anchorage is off Jamestown.

Recife

Although the capital of the state of Pernambuco is Brazil's fourth largest city, Recife is a more relaxed place than its more famous counterparts.

Occasionally referred to as the Venice of Brazil for its many canals, bridges, and tiny one-way streets. The fusion of cultures among the people of Recife has left visible traces everywhere. The city abounds in old buildings, richly decorated churches and is also one of Brazil's best places to explore folk arts and crafts, music, dance and sculpture. Souvenir shopping in the street markets is a favourite pastime among visitors.

The arrival of the Rally has been timed to coincide with Carnival, which is now regarded as one of the most attractive Carnivals in the whole of Brazil. The locals insist that when it comes to sounds, rhythm and dance, no other Carnival compares to Recife.

Hundreds of artists perform in the streets and there seems to be a show in every corner of the town. The colour and exuberance of Recife will be provide a spectacular closing chapter to an unforgettable round the world voyage.

Carnival in Recife

Fernando de Noronha

The archipelago, with it's amazing landscapes, diverse wildlife and crystal clear waters make it a favourite place for cruising yachts to visit.

As the islands are a National Park, high daily fees are charged limiting most yachts to short visits.

Weather - Cape Town to Brazil

Back into the Atlantic, the weather is controlled by the St. Helena High, sometimes called the South Atlantic High.

The Bay at Cape Town can have remarkable winds with the wind shadow of Table Mountain disturbing the flow. Strong south east winds can come around the east side of the mountain with south west winds on the west side giving and area where you literally sail from 30 knots to zero in a few hundred metres.

The start from Cape Town is usually best effected by a course of northwest into the start of the trade winds. These can be strong (up to 30 knots) for the first 48 hours, before dropping. Sometimes the southeast wind in Table Bay will be strong enough to hug the coast for the first day, but getting some westing is usually advantageous.

The southeast trades of the South Atlantic are said to be the steadiest trade winds in the world, averaging 13-18 knots. To avoid the high pressure, the route to Brazil follows a northerly route before heading west. The stops in Namibia and St Helena reinforce this option.

Between Namibia and St Helena the wind should be predominately southeast. From St Helena to Recife it is likely to back more easterly, possibly even northeast by the time of arrival.

Squalls will increase the further west we get, with the worst squalls usually in the latter part of the night and morning. Approaching the Brazilian coast, the south flowing current (the Brazilian Current) will be felt. This is often marked by towering cumulus clouds and will be the first sign of land.

The trade winds ease on the west side and swing to the east or even northeast, strengthening near the land during the day, although as night approaches there can be in light conditions.

Brazil to Caribbean

Weather - Recife to Caribbean

The equatorial current splits at the northeast corner of Brazil, with part heading south and the other heading west-north-west along the coast of Brazil all the way to the Caribbean.

Average wind speed for the trade winds for this section is east to northeast 15-20 knots.

The ITCZ is north of the equator and large scale convection can cause some problems with squalls along the route, however at other times reports are of steady trade winds with little squall activity.

The trade winds will swing to the northeast along the route once through the ITCZ. The ITCZ is considered to be at its narrowest on the western side of the Atlantic, however, being too close to the land, the ITCZ appears to widen again.

It is worth noting that the river Amazon discharges not only a huge amount of water into the Atlantic, but also trees, branches and vegetation.

Port Louis Marina in Grenada

Friendly and Fun Competition

Rally Divisions

The World ARC fleet is organised into the following divisions:

Cruising

Multihull

Open

Cruising and Multihull Divisions

Boats in these divisions are given a World Cruising Club Time Correction Factor (TCF) or handicap prior to the start. This allows reasonable competition between similar sized boats, makes and models, of varying ages.

The rating is based on boat information given by skippers recorded on the Boat Information page in the members area. The TCF is calculated using the normal parameters of yacht handicapping, including: length overall, waterline length, displacement, beam, draft, sail measurements [I, J, P, E] and an allowance for age.

World Cruising Club Time Correction Factor (TCF)

Your TCF is the number used to adjust your elapsed time (total time taken for the crossing) to enable all yachts to compete on a fairer basis.

For example, a boat with a TCF of 0.995 would have its elapsed time reduced by this factor, while a boat with a TCF greater than 1 would have the elapsed time increased.

Participants should remember that the competition is for fun and enjoyment. A level of sportsmanship and honesty is expected from skippers in accurately providing yacht measurement details and in reporting the number of engine hours used.

Changes to World Cruising Club TCF

World Cruising Club TCFs are calculated based on the information provided by skippers. Provisional TCFs are published prior to the Skippers Briefing. Details of how to request a ratings review will also be issued at this time.

Open Division

Boats not wishing to take part in the competition, or where no measurements are received are placed in the Open Division. Participants in this class will not receive handicaps and will not be awarded prizes.

Results

Results are only calculated after all boats have crossed the finish line, and are published before the prize giving, including on the Rally website at worldcruising.com.

Corrected Time

The following formula is used to calculate Corrected Time (CT):

Elapsed Time

The elapsed time is the total time taken from start to finish, in days, hours, minutes and seconds.

Engine Hours and Motoring Factor

In the cruising and multihull division boats are allowed to motor for a limited distance, although use of the engine is penalised. **Motoring is classed as the engine running with the gear lever engaged in 'forward', with the shaft(s) and propeller(s) turning.**

Boats must maintain a full and proper log of daily engine hours used for propulsion during the crossing. These must be submitted together with a declaration for the total hours motored on arrival. Random checks on engine and generator counters will be made.

The boat's total number of engine hours is then multiplied by the Motoring Factor (a time penalty) of between 1.00 and 2.00. This gives a total number of hours, which are added to the boat's elapsed time.

The Motoring Factor is set according to the overall general weather conditions during the crossing, and is only determined after the finish line has closed.

Corrected Time

CT = [Elapsed Time + (Engine Hours x Motoring Factor)] x WCC TCF