

Monsoon and Navigation of the Indian Ocean (During the Period from 11th to 15th Century AD)

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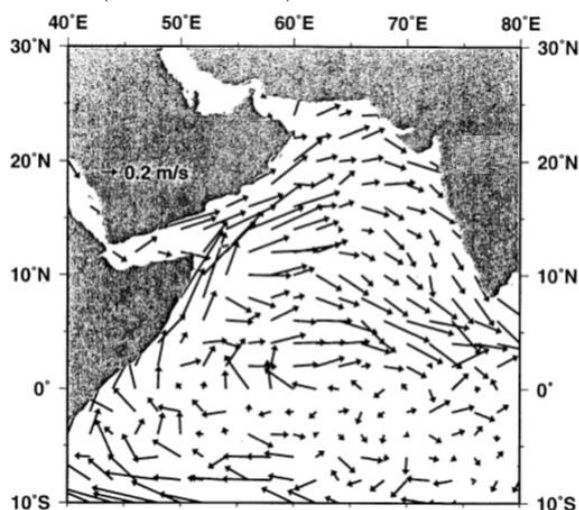
Abstract: Trade in the Indian Ocean has been done according to the vagaries of the monsoon. The merchants had to travel from region to region with appropriate rigging of sails across the monsoon. It is noteworthy that the institution of ports in the Indian Ocean was done in the route of the monsoon. As Sri Lanka also was an island in the Indian Ocean trade route, it was a convenient lodge for ships travelling with the monsoon. There is ample evidence that merchant ships arrived in Sri Lanka constantly from the western and eastern regions of the Indian Ocean. These ships had travelled in the Indian Ocean in daytime without the aid of mariner's compasses, and during the night following the stars. A special study has to be made on the period they came to Sri Lanka, purpose of the visit, the navy port and the period of trade barter, which are important. For this purpose, it is necessary to consider such environmental factors as monsoon, ocean current, and the shipping ports in Sri Lanka, and the nature of the ships. This chapter proposes to take up such matters in depth. It has been discovered that because of the monsoon trade in the coastline of Asia has progressed along 03 commercial zones, viz. Arab Oceanic Zone – North-east Africa, southern middle-east and the western coast of India., Bengal Zone – Coromandel coast, Andhra, Orissa, Bengal, Burma, Thailand and the western zone of Malay peninsula, Sumatra, Borneo and the Philippines., South China Zone – From Canton in China up to the Malacca Straits, Thailand, Eastern Malay Peninsula, Sumatra, Borneo, Philippines including Indo China.

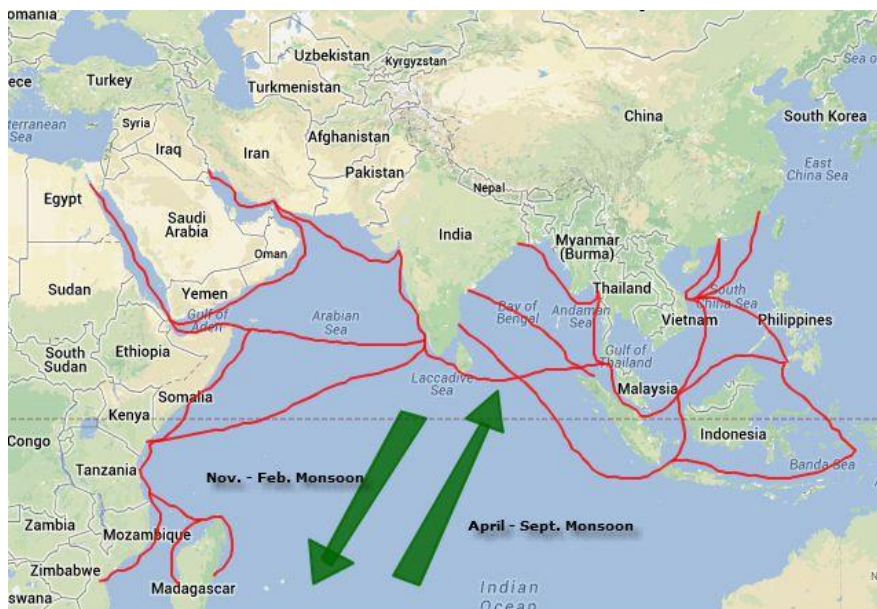
Keywords: monsoon, Indian ocean, trade, silk Road, navigation, trade

The south-west monsoon prevails in the Arab Oceanic Zone from May up to August. The north-east monsoon in the Indian Ocean exists from November to February. Within the period of south-west monsoon in the Arab Oceanic Zone the wind blows from the south to the south-west and the west. This period is marked by continuous rough winds and heavy rains and the ocean is relentlessly rough and turbulent. The wind in the months of August and September causes sudden losses and rarely heavy rains. At the end of October, north-east monsoon gathers and the period is marked by rains with thunderstorms. Again, mild weather is seen at the end of November. (Sarkar 1986:296)

The blowing of the wind in inclement weather from July to August in the Arab Oceanic Zone. (Mariano 1999)

According to Al Masudi, [Al-Mas'udi was an Arab historian, geographer and traveller. He is sometimes referred to as the "Herodotus of the Arabs". Al-Mas'udi was one of the first to combine history and scientific geography in a large-scale work, The Meadows of Gold and Mines of Gems, a world history] the Arab ships have refused to sail across the Arab Ocean in June of the 10th century (Al Masudi 1987:151). He further states that because of the north-east monsoon it is difficult to sail in smaller ships from Oman to India (ibid). Accordingly, the best period to cross the Arab ocean in the north-east monsoon is the period between mid-November and mid-December. There are 1562 miles from the port of Muscat to Sohar, which is 2513 in kilometres. In this wind condition this trip can be completed within 28-30 days and cover 50 miles (80 km) per day (Pearson 1916:8).



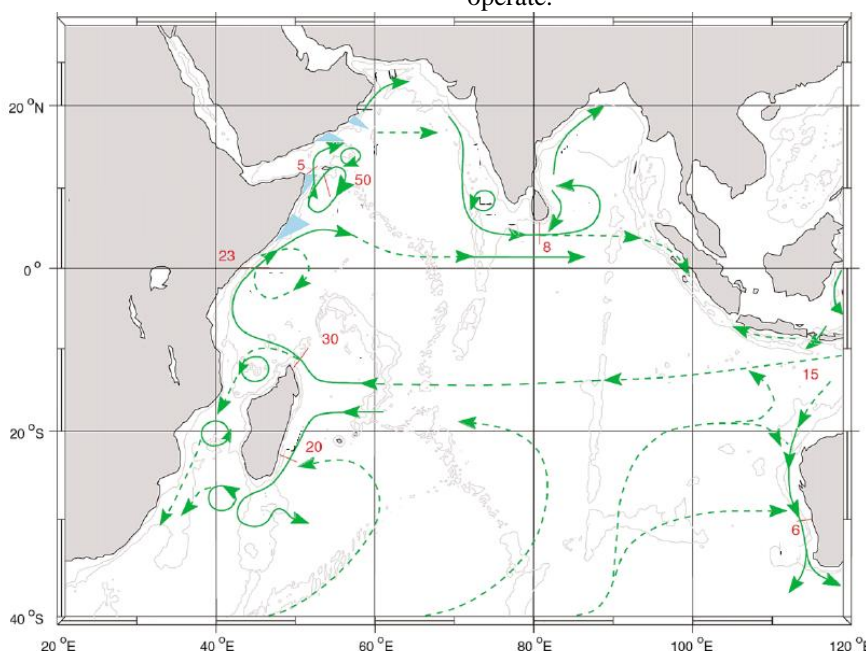


Trade routes that connect Malabar and Sri Lanka in the Arab Ocean Zone

According to Sarkar, this course of action is followed even today. In the months of September and October the roughness in the area between shorelines of Muscat in the Persian Gulf and the Malabar Coast increases because of the blowing of the monsoon. Before sailing across Bengal these ships drop anchor in important ports such as Quilon in the Malabar Coast. Therefore, Chinese ships sail across the Persian Gulf before the months of September and October (Warren 1987:151). In the months of November and December sailors reach Quilon from Muscat with the help of the north-east monsoon. Sometimes in the end of December or the beginning of January these ships would recommence their trips. Marco Polo has taken 20 days to sail from Malabar to Zanzibar across the Coromandel Coast (Marco Polo 1982:263). The west coast in India is closed from June to August. In reaching India from the Persian Gulf the sailors had two optional routes, viz.

- 1) Sailing across the north-west and west coasts in India from the Persian Gulf
- 2) Sailing direct from the Persian Gulf to the Malabar Coast across the Arab Ocean.

According to Zheng he’s travel notes, it is evident that this trip had taken nearly a month (see table 2.6). According to Tim Severin records, Arabs have sailed from Oman to China using their sailing ships (Hall 1996:31). The Arabian merchants have referred to Sri Lanka as a famous port in the Indian Ocean (ibid: 31). Thus, the merchant ships which sail from the Malabar Coast to Southeast Asia have reached Sri Lanka with the south-west monsoon and until the monsoon changed they had to take a break in Sri Lanka (Pearson 1976:10). The period from June to August is one of most violent storms. As it is difficult to sail during this period across Bengal, the eastern ports in India and Sri Lanka become the lodging ports of ships. Against this background, arose the opportunity for Sri Lankan trade connections to operate.



Showing the direction of ocean currents during the monsoon in the Indian Ocean (F.A. Schott, J.P. McCrery Jr. (2001)1.-123)

Ships sailing from the Malabar Coast in India towards the West Indian Ocean sail from October to March during the north-east monsoon. Ibn Battuta’s ship that sailed using the north-east monsoon had taken 28 days to reach Safar, the port in South Arabia, from Calicut (Ibn Battuta 1968, II: 196). Until the beginning of this period Persian, Arabic, Indian and Chinese merchants lodged constantly in the west coast of India and Sri Lanka. It is evident that attending to repairs of ships may have been done in India and Sri Lanka during this period. Subsequently, the ships that sail towards East Africa begin their navigation to WestAfrica during October-November.

It is quite easy to sail from Cambay to Southeast Asia with the north-east monsoon. Return trip of merchants of the Gulf Coast who sailed to the east took place at the second-half of May, which was before the south-west monsoon (Sarkar 1986:303-304).

The mode of sailing from the port of the Arab Ocean to the port of Bengal has been described by Hammer under 03 tables. Following is his description:

Port	Destination	From
Aden	Malacca, Sumatra, Tenasserim, Martaban, Bengal and all the ports situated below the wind	12 th August
Sheher and Meshkara	Malacca, Sumatra, Tenasserim, Martaban, Bengal and all the Ports situated bellow the wind	22 nd August
Gujarat	Sumatra, Tenasserim, Bengal and all the ports situated below the wind	2 nd September
Concona (Konkan)	Sumatra, Tenasserim, Bengal and all the ports situated below the wind	6 th September
Maldives	Malacca, Sumatra, Tenasserim, Martaban, Bengal	21 st September

(Hammer 1834:551-552)

The commencement of the trip from the Arab Ocean to the Bay of Bengal

Port	Scheduled Places	From
Gujarat	Malacca, Sumatra, Tenasserim(Tanassari), and Bengal	16 th March
Malabar	Malacca, Sumatra, Tenasserim, Martaban,	14 th

	Bengal and all the ports situated below the wind	April
Maldives	Malacca, Sumatra, Tenasserim, Martaban, Bengal and all the ports situated below the wind	14 th April
Dofar	Malacca, Sumatra, Tenasserim, Martaban, Bengal and all the ports situated below the wind	24 th February
Muscat	Malacca, Sumatra, Tenasserim, Martaban, Bengal and all the ports situated below the wind	16 th March

(Hammer 1834:551-552)

End of Sailing Season from the Arabian Sea to the Bay of Bengal and beyond

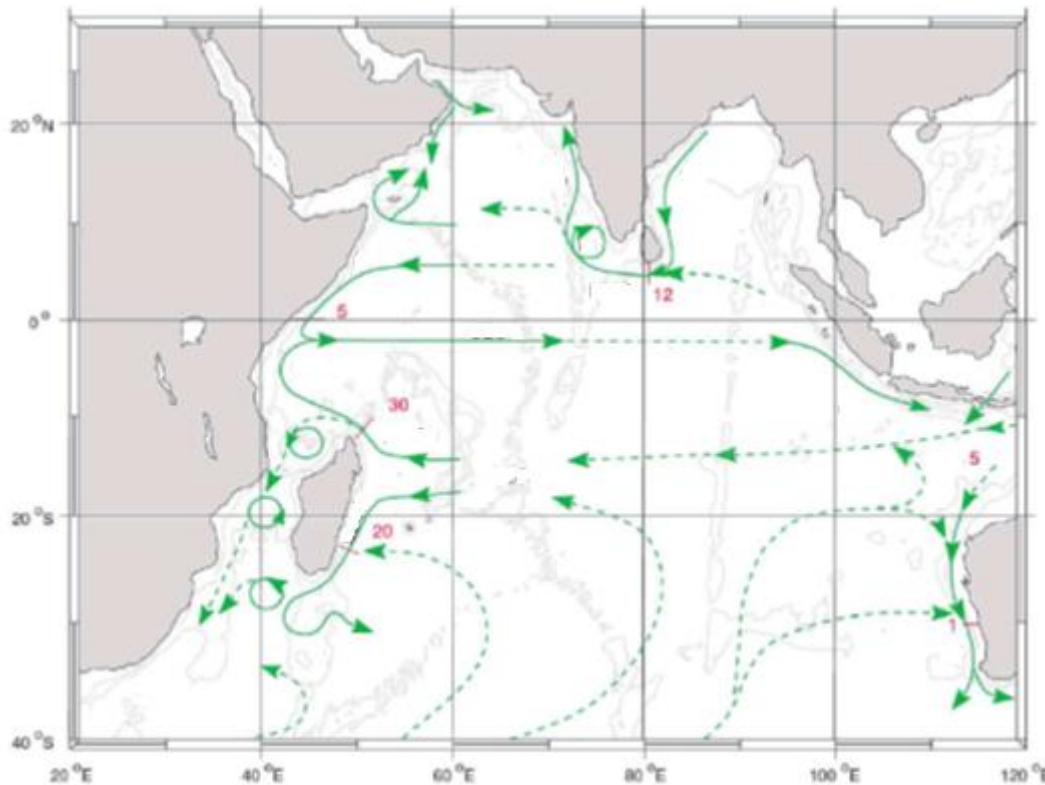
Port of Commence	Scheduled destination	Start	End
Bengal	Aden, Mecca (Jedda), Hormus	25 th December	25 th January
Bengal	Sri Lanka	13 th February	Not mentioned
Shomotora	Bengal	13 th February	4 th April

(Hammer 1834:552-553)

Time Table Sailing Schedule from the Bay of Bengal

It is possible to sail from Egypt to India and Sri Lanka in the months of May and June with the south-west monsoon. Within these months, the intensity of the south-west winds and the average speed is from 22 degrees to 33. Sometimes the speed of the wind is a fierce 34- 47 degrees. The period between the north-east monsoon and the south-west monsoon is the inter-monsoon period. From September to October and March to April are inter-monsoon periods. Because of this fierce wind that blows in September or October, ships could sail across the Arab Ocean to the east coast of India or Sri Lanka. To sail back again to Africa, Red Sea or the Persian Gulf sailors would make use of the north-east monsoon that begins in the month of November (Jahan 2006:156).

The north-east monsoon constantly takes the form of storms or whirlwinds. Again powerful storms appear in the month of October. The blowing of the wind in the inter-monsoon period is generally seen as a whirl from the south-west direction. By the month of May the violent winds of Coromandel blow from the south to the south-west. Months of May and June are a most damaging period for Bengal and the wind blows accompanied by rain.



Showing the direction of ocean currents during the south-east monsoon in the Indian Ocean (F.A. Schott, J.P. McCreary Jr. (2001) 1-123)

November to mid-February and these winds are used for the return journey.

The beginning of the south-west monsoon in Sri Lanka is a short, mild period. These are known as short monsoons. They occur in the first-half of May and the first-half of June. The harsh monsoon prevails from June to August and the intermission for ships is 03 months. During this period ships begin to reach the north-east coast of Sri Lanka from South Coromandel. The south-east monsoon continues from mid-

From	Lodge	Period
Bengal	Hormuz, Yemen, Hijaz	1 st January – 31 st January
Bengal	Ceylon, Maldives	1 st January-10 th February
Malacca, Pegu, Siam	Ceylon, Maldives	1 st January-10 th February
Java, Sumatra, Malacca, Tanasari	Bengal	20 th February – 11 th April

Sailing Schedule across the Bay of Bengal (From Ahmad Ibn Majid) (Tibbett 1981:233)

Source	Origin	Destination	Outward	Return
Methwold	Masulipatnam	Achin, Arakan, Pegu, Tenasserim	September	February to April
Schorer	Masulipatnam	Bengal, Arakan, Pegu, Achin, Priaman, Queda and Perak (Muslim merchants)	September	----
Schorer	Masulipatnam	Achin, Bantam (English Merchants)	May or beginning of June	-----
Schorer	Masulipatnam	Arimogam, Pulicat, Negapatam, Ceylon, Cochin	January	----
Schorer	Cochin, Nagapattinam, St.Thome	Bengal, Aracan, Pegu	August and September	March or April

Sailing Schedule across the Bay of Bengal (Shahnaj Husne Jahan 2006)

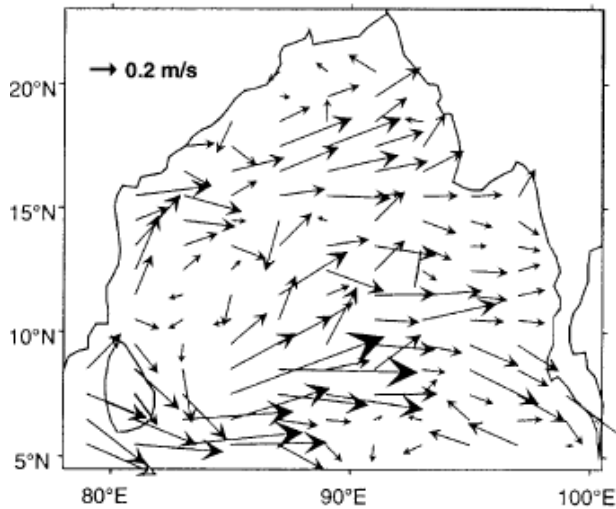
Sailors have sailed from Bengal to Southeast Asia, and then through alternate routes to China. From there they reach Orissa and Andhra coast and continuing their journey they sail along the Andaman Sea up to the Malacca Straits and continuing beyond to the Malay Peninsula and other regions in Southeast Asia and finally to China. According to Cordes, there are two main routes to travel from India to Southeast Asia:

- The first of these is across 10-degreeChannel and passing it up to Andaman and Nicobar Islands and the Thakupa Port in Thailand and to the south of the 10-degree Channel passing Nicobar Islands to Kedah in Malaysia.

- On the second route across Martaban Coast to Thavoi in Burma and subsequently using caravan routes across Pagodas and other Maenam Chao Phraya delta and Kanchanaburi and Ratchaburi delta.

Within the period between October-November and February navigation is done using north-east monsoon to the eastern coasts of Sri Lanka and India. The return trip to Southeast Asia was across the eastern coasts of Sri Lanka and India. They have recognised the danger inherent in the navigation in the Bay of Bengal from May and July to August. Storms and whirlwinds in the Bay of Bengal compelled the ships to drop anchor in secured ports. The north-east monsoon in January is identified as “north-east trade winds”. This wind blows towards the north of the Bay of Bengal in the form of a clock hand. Similarly, in the months of May the

growth of currents and tides are observable. Again in the month of April in the north-east Bay of Bengal the wind becomes extremely strong. The activity of the wind in the month of May be strong towards the south-west and it becomes stabilised in the Bay of Bengal up to June. The strongest wind is in July and August. But its influence and importance to the marginal countries is considered minimal.



The blowing of the wind during inclement weather in Bengal during July to August (Eigenheer & Quadfasel, 2000)

For navigation from South Sumatra and Java across the Malacca Straits to China, north-east monsoon is used from December-January to March. These winds become active over the Malacca Straits in November and December. The east coast of Malaya Peninsula is regularly afflicted by this wind. Similarly, the north-east monsoon travelling towards the north-west approaches the equator. The inhabitants of the country living to the south of the equator refer to the north-west winds as the western monsoon because these rains bring them sudden calamities and heavy rains. Subsequently, this inter-monsoon period combines with the north-east monsoon which becomes active from April to May.

The south-west monsoon becomes active from June to September reaching its intensity in July. The inter-monsoon begins in September for two months. As the hills and the eastern hill inclines in the south-west quarter of Sumatra serve as a protective wall, the Malay Peninsula is not at all able to endure this period. The rough winds that blow at times were known as 'Sumatra'. As a result these winds become chaotic at the south-west end of the China Sea. The sea wave at certain places becomes quite strong and at the Malaysia Coast it grows and rises over 20 ft. Navigators have made use of these winds to sail to the west coast of Malaya (Hammer 1834:342).

The activation of 'south-west monsoon' could be observed in the southern region of Southeast Asia. This can be seen in Java as a dry wind and is referred to as the eastern monsoon. The north-east monsoon in Burma, Thailand and Indo China is comparatively extremely dry. When travelling in the South China Sea the humidity in the wind increases giving

rise to rains. Within the inter-monsoon that follows rains known as *amba vesi* occur with overcast skies and thunder. In this region the south-west monsoon is weaker than the north-east monsoon (ibid 231). During the inter-monsoon a typhoon condition could be observed in the China Sea continuously. By November, the north-east monsoon generally gets stabilised in the South China Sea. However, it does not become acutely severe before December at 5 degrees latitude but reaches its peak in January and February. During the south-west monsoon typhoon conditions are high in the southern region of the South China Sea. Under these wind conditions ships had sailed avoiding the storms towards the west of the Indian Ocean. The best example for this is the travel reports of *Chen Ho (Ma Huan)* 1799). Accordingly, a description is given below:

Destination	Time	Monsoon & the direction of the sail
Arrival in Malacca from Champa	08 days	Sailing towards the south-west
From Malacca to Eastern Sumatra	04 days	Sailing towards the south-west and south
Samudra (Su-Men-Ta-La) Port	05 days	Sailing with the South-west monsoon
Arrival in Lambri from Sumentala (Semudera)	03 days	Sailing to the south-west
To Nicobar and Andaman Islands from Lambri	03 days	Sailing to north-east
Arrival in Sri Lanka from Nicobar	07 days	Sailing towards the west
Arrival in Quilon from Beruwala	06 days	Sailing to the north-west
From Cochin to Calicut (Kuli)	03 days – a distance of 30 miles	Slow sailing to the north-east
From Calicut to Sofar	10 days	Sailing towards north-east
From Calicut to Homes	25 days	Sailing towards north-west

Navigation Table in Bengal and Arab Sea- according to Ma Huan record (Kekulawala 2017)

This monsoon condition makes quite an interesting ocean trip. Sailing to Canton from the ports in the Malay Peninsula is done quite easily by the ships using the north-east monsoon. On the other hand, December is the best period to sail to Canton passing Malaya Peninsula with the north-east monsoon. Sailing in the South China Sea with the north-east monsoon seems to be a rather isolated occurrence. This is a weather which makes it impossible for smaller ships to travel and certain ports are not open for small ships. As a rule, sailing of domestic ships in this region from October-November to February is brought to a halt (Tibbettes 1981:128).

The navigation sailing schedule of ships is mentioned, *Chu Yu's* record of *phing chou kho than* report written in 1119 AD. Accordingly, these ships sailing with the north-east monsoon did so for about 11 or 12 months and the return trip took place using the south-west monsoon in 05 or 06 months (Needham 1971:460). By the fifteenth century AD, as pointed out by Ahmed Ibn Majid, mariners have sailed from China to Malacca, Java, Palembang in Sumatra and beyond in the first 100 days of the year (from 21st November to 02nd March) (Tibbetts 1981: 233).

The record of *Chen Ho* showing the timetable of marine travel is quite important in the present context. Accordingly, in his seventh tour (1431-1433 AD) a trip he had begun from Nanjing on 19 January had finished with the entry to River Ming on 08 April 1431. There is evidence that his trip took nearly 08 months. On 12 January 1432 AD he had commenced his journey with the north-east monsoon towards the south and arrived in Vietnam on 27 January 1432 AD. Again he had arrived in Surabaya on 07 March 1432 leaving Quai con on 12 February 1432. On 09 May 1433 he had set off to Malacca. He had again arrived in Vietnam on 13 June 1433 and finally China on 07 July 1433 (Ma Huan 1970:22-23).

These facts establish that three main periods had been used to maintain relations with Sri Lanka from the East Indian Ocean.

- 1) Using the inter-monsoon, viz. the period between the south-west and north-east monsoons (from August to September) to travel to Bengal and Southeast Asia from Sri Lanka and Coromandel coasts.
- 2) To sail to Sri Lanka and Coromandel coasts from Bengal and Southeast Asia using the north-east monsoon (from November –February) and the inter-monsoon (March to April)
- 3) To sail from Sri Lanka across Bengal and using the north-east monsoon (December to February) and during the inter-monsoon (March to April) to sail to Southeast Asia.

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