

2001 Mar. 2/1 SQA Q1. RLGC

a)	Trondheim Pilot Station	63° 15' N	MP 4917.20	007° 37' E
	Faeroe Is.	61° 14' N	MP 4657.67	006° 40' W
		2° 01' S	DMP 259.53	14° 17' W
	Dlong/DMP = Tan Co		121'	857' W

$\therefore Co = \tan^{-1}(857 \div 259.53) = 73.15183$

Dist = Dlat / cos Co. \therefore Dist = $121 \div \cos 73.15183 = 417.48$ n.m.

$\cos AB = \cos Dlong \cos lat A \cos lat B + \sin lat A \sin lat B$

Start 61° 14' N . 61.23333 006° 40' W

Wpt 42° 30' N 42.5 050° 00' W

Dlong 43° 20' = 43.33333

$AB = \cos^{-1}(\cos 43.33333 \cos 61.23333 \cos 42.5 + \sin 61.23333 \sin 42.5)$

AB = 1905.39 .

Wpt	42° 30' N	MP 2806.42	50° 00' W
Boston Pilot	42° 20' N	MP 2792.93	70° 46' W
	10' S	DMP 13.49	20° 46' W = 1246' W

Dlong/DMP = Tan Co = $1246 / 13.49 \therefore Co = 89.3797$

Dist = Dlat / cos Co \therefore Dist = $10 \div \cos 89.3797 = 923.7$

AB = 1905.4

1st leg = 417.5

Total Dist = 3246.6 n.m.

b) Steaming time = $3246.6 \div (17 \times 24) = 7.95735$ days = 7d 22h 58.6m

Start time 29th April 29d 10h 00m ST.

'76 NA. ST allowance (Summer time) - 2h

29d 08h 00m GMT

Steaming time (37) 7d 22h 59m

Arrival ETA 7d 06h 59 GMT

'76 NA. ST. Allowance (Manachusetts) - 05h

*** ETA May 7d 01h 59m ST.

May 7d 02h 59m Summer time.

2/1 SQA - NAV - 2001 MAR Q2. CT

2) @ 2100 GMT - 2nd May '76 in DR 53° 12' N 34° 08' W to 230° T @ 17k
 Calculate GMT CT on 3rd May (AM).

3rd CT @ 52° N 3d 03h 47m LMT.

34° 08' W LIT. 2h 17m

1st Approx CT 3d 06h 04m GMT.

Start Time 2d 21h 00m GMT

1st Approx Runtime 09h 04m

09.06667 * 17k = 154.13 1st Approx run.

50° N 04 00
~~1st CT 52° N 03 52 * LMT~~

54° N 03 42

50° N 03 54

4th CT 52° N 03 45 *

54° N 03 35

3rd CT 52° N 03 47 LMT

$$\begin{aligned} Dlat &= Dist \cos C \\ &= 154.13 * \cos 230^\circ \\ &= 99.07 S \end{aligned}$$

$$\begin{aligned} Dep &= Dist \sin C \\ &= 154.13 * \sin 230^\circ \\ &= 118.07 W \end{aligned}$$

$$\begin{aligned} \Delta \text{long} &= Dep / \cos \text{Lat} \\ &= 118.07 / \cos 52^\circ = 37.5 \\ &= 193.4 W \end{aligned}$$

start Lat 53° 12' N Long 034° 08' W

Dlat - 1 39.1 S Dlong 3° 13.4 W

1st App. Lat 51° 32.9 N

Long 037° 21.4 W

Mean Lat 52° 22.5 N

3rd CT @ 51° 32.9 3d 03h 49m LMT.

37° 21.4 W LIT. 2h 29m

2nd App CT 3d 06h 18m GMT. **

Start time 2d 21h 00m GMT

2nd App. Runtime / dist 09h 18m @ 17k = 158.1

This is only 4' more than 1st run distance which would not change the CT time by more than 1 minute, therefore 2nd App CT is acceptable.

Ans. CT on 3rd @ 06h 18m GMT.