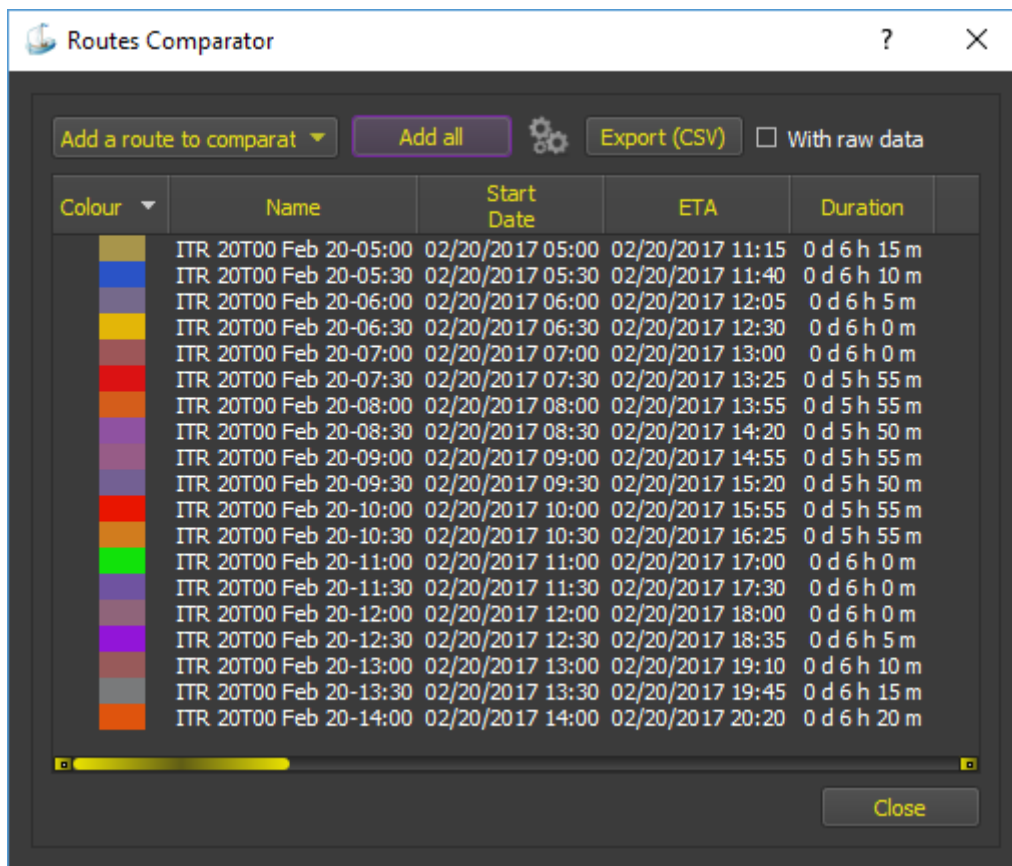


Iceland Timed Race 2017

Picking the best starting time is obviously a most important aspect of a timed race. Because of the simplicity of the Iceland race course, which consists only of a start and a finish with no intermediate marks it is comparatively easy to find a promising time window. Just use the weather slider on the SOL client and watch out for strong westerlies. This was predicted for the fist half of Monday.

A routing program can be used to improve the first guess by performing several calculations of the expected elapsed time over a range of starting times. The figure below shows the results of qtVlm with the 04:30 UT weather forecast from Monday morning. According to this prediction sailing times of less than 6 hours could be expected between 07:00 UT and 11:00 UT.



The screenshot shows a window titled "Routes Comparator" with a table of sailing routes. The table has five columns: "Colour", "Name", "Start Date", "ETA", and "Duration". The "Name" column contains entries like "ITR 20T00 Feb 20-05:00". The "Start Date" column shows dates like "02/20/2017 05:00". The "ETA" column shows dates like "02/20/2017 11:15". The "Duration" column shows times like "0 d 6 h 15 m". The table is sorted by duration, with the shortest duration at the top. A color-coded bar is visible on the left side of the table. The window also includes buttons for "Add a route to comparat", "Add all", "Export (CSV)", and "With raw data". A "Close" button is at the bottom right.

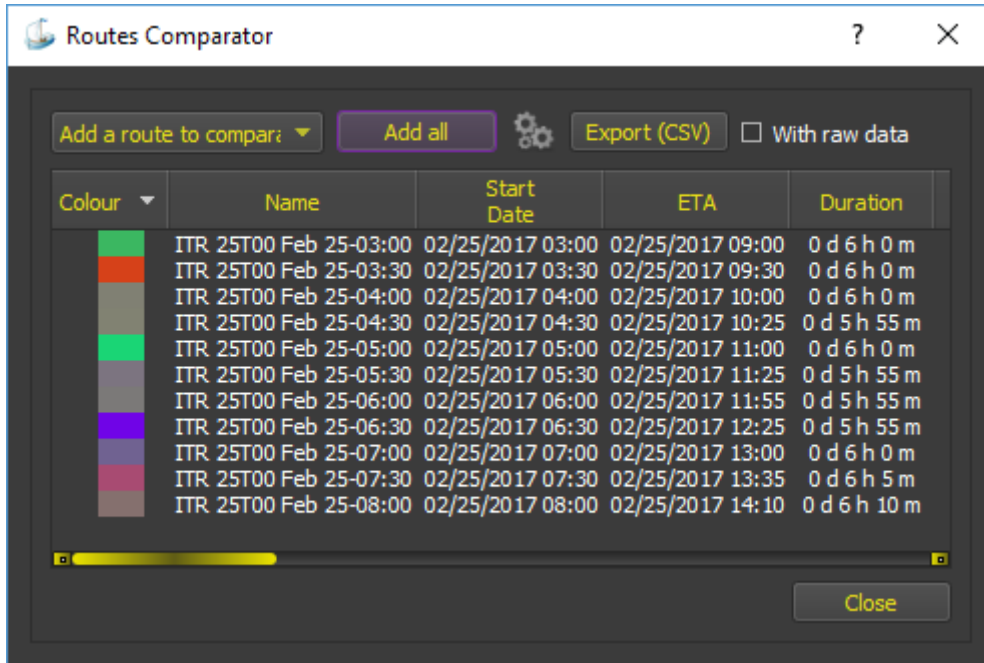
Colour	Name	Start Date	ETA	Duration
	ITR 20T00 Feb 20-05:00	02/20/2017 05:00	02/20/2017 11:15	0 d 6 h 15 m
	ITR 20T00 Feb 20-05:30	02/20/2017 05:30	02/20/2017 11:40	0 d 6 h 10 m
	ITR 20T00 Feb 20-06:00	02/20/2017 06:00	02/20/2017 12:05	0 d 6 h 5 m
	ITR 20T00 Feb 20-06:30	02/20/2017 06:30	02/20/2017 12:30	0 d 6 h 0 m
	ITR 20T00 Feb 20-07:00	02/20/2017 07:00	02/20/2017 13:00	0 d 6 h 0 m
	ITR 20T00 Feb 20-07:30	02/20/2017 07:30	02/20/2017 13:25	0 d 5 h 55 m
	ITR 20T00 Feb 20-08:00	02/20/2017 08:00	02/20/2017 13:55	0 d 5 h 55 m
	ITR 20T00 Feb 20-08:30	02/20/2017 08:30	02/20/2017 14:20	0 d 5 h 50 m
	ITR 20T00 Feb 20-09:00	02/20/2017 09:00	02/20/2017 14:55	0 d 5 h 55 m
	ITR 20T00 Feb 20-09:30	02/20/2017 09:30	02/20/2017 15:20	0 d 5 h 50 m
	ITR 20T00 Feb 20-10:00	02/20/2017 10:00	02/20/2017 15:55	0 d 5 h 55 m
	ITR 20T00 Feb 20-10:30	02/20/2017 10:30	02/20/2017 16:25	0 d 5 h 55 m
	ITR 20T00 Feb 20-11:00	02/20/2017 11:00	02/20/2017 17:00	0 d 6 h 0 m
	ITR 20T00 Feb 20-11:30	02/20/2017 11:30	02/20/2017 17:30	0 d 6 h 0 m
	ITR 20T00 Feb 20-12:00	02/20/2017 12:00	02/20/2017 18:00	0 d 6 h 0 m
	ITR 20T00 Feb 20-12:30	02/20/2017 12:30	02/20/2017 18:35	0 d 6 h 5 m
	ITR 20T00 Feb 20-13:00	02/20/2017 13:00	02/20/2017 19:10	0 d 6 h 10 m
	ITR 20T00 Feb 20-13:30	02/20/2017 13:30	02/20/2017 19:45	0 d 6 h 15 m
	ITR 20T00 Feb 20-14:00	02/20/2017 14:00	02/20/2017 20:20	0 d 6 h 20 m

I decided to start at 09:00. But I don't trust these programs too much. Starting at 08:00 or 10:00 would probably be just as good. Unfortunately none these times were not convenient for me, because I had to work.

But the simplicity of the course allowed me to do the entire race with DCs. In the prevailing westerlies in the mid- to high twenties I started on starboard and gybed to port 50 minutes later. Presumably everyone else did the same. After the 10:30 weather forecast I prepared some small course adjustments with kipper's DC checker tool during my lunch break and came back shortly a few minutes before finishing, just to be sure I did not miss the line.

Later that day I learned that I had the fastest run, but both Franci and bonknhoot finished within one server update interval. So there was a fair amount of luck involved.

After Monday the race appeared to be decided, but later in the week it became obvious, that an other good opportunity for a record run would be on Saturday morning. The qtVlm prediction on the basis of the 04:30 UT weather forecast from Saturday is shown below. Again, times less than 6 hours appeared to be possible. And with the help of a favourable 10:30 UT forecast an improvement might be possible.



Colour	Name	Start Date	ETA	Duration
	ITR 25T00 Feb 25-03:00	02/25/2017 03:00	02/25/2017 09:00	0 d 6 h 0 m
	ITR 25T00 Feb 25-03:30	02/25/2017 03:30	02/25/2017 09:30	0 d 6 h 0 m
	ITR 25T00 Feb 25-04:00	02/25/2017 04:00	02/25/2017 10:00	0 d 6 h 0 m
	ITR 25T00 Feb 25-04:30	02/25/2017 04:30	02/25/2017 10:25	0 d 5 h 55 m
	ITR 25T00 Feb 25-05:00	02/25/2017 05:00	02/25/2017 11:00	0 d 6 h 0 m
	ITR 25T00 Feb 25-05:30	02/25/2017 05:30	02/25/2017 11:25	0 d 5 h 55 m
	ITR 25T00 Feb 25-06:00	02/25/2017 06:00	02/25/2017 11:55	0 d 5 h 55 m
	ITR 25T00 Feb 25-06:30	02/25/2017 06:30	02/25/2017 12:25	0 d 5 h 55 m
	ITR 25T00 Feb 25-07:00	02/25/2017 07:00	02/25/2017 13:00	0 d 6 h 0 m
	ITR 25T00 Feb 25-07:30	02/25/2017 07:30	02/25/2017 13:35	0 d 6 h 5 m
	ITR 25T00 Feb 25-08:00	02/25/2017 08:00	02/25/2017 14:10	0 d 6 h 10 m

This time the wind was stronger than on Monday, in the high twenties and low thirties, and a little further to the SW. Therefore it was very important to zoom in on the starting area. There is the danger that the run would be interrupted after less than a mile by a Vestas on the southern tip of Heimaey. Otherwise the course was similar to the one on Monday. Start on starboard, one gybe and finish on port.

I had to leave home an hour and a half after my start and was busy all day, so all the rest of the race was again done with DCs. When I returned in the evening I was happy to find the boat has hit the finishing line, and the time was excellent as well, just 21 seconds slower than on Monday. Congratulations to atlet, who was the fastest on Saturday and finished 4th overall.

And in the chat I read a question from SCARABOCCIO, who asked what can be done to loose less performance in a high speed gybe. Here is my somewhat late reply.

My understanding of the SOL performance model is like this. Every time a boat changes it's course, it its slowed down a little. This performance improves over time, until it is back at 100%. The rate of improvement depends on the boat speed.

The performance loss accumulates if an other change of course occurs, unless the performance is already less than 93%. In that case, there is no further performance penalty. This is the reason, why some kind of tax evasion scheme can be devised.

When tacking or gybing, the performance loss depends on the boat speed after the course change. The number to remember her is 14 knots. If a boat starts to gybe at 100% performance and the boat speed after the gybe is 14 knots the performance drops to 93%.

So, if you are SOLing in a slow boat or if the wind is so weak that the downwind target speed is less than 14 knots, gybe as you need to do and pay the same price as every one else. If, on the other hand, the downwind target speed is in excess of 14 knots it is possible to gain a small advantage by performing what I call a two step gybe.

The first step is the actual gybe, but not to the downwind target angle. Instead gybe so that the initial polar speed after the gybe is just over 14 knots. This change of course drops the performance to below 93%. In the second step head up to the downwind target angle. This second step is free if it follows before the performance recovers to above 93%. The net effect is that the boat is back on it's target angle (not speed, because of the performance loss), but at a performance that is better than if it had gybed in one step.

So what is just over 14 knots? I admit, in the past I have used DCs to gybe to 14.01 knots and head up 2 or 3 seconds later. That has actually worked at times. At other times the performance dropped all the way to 80%. Maybe the performance had recovered above 93% before the second DC got executed. I don't really understand it, but I definitely don't do this any longer. I am using a more conservative approach instead and aim for a boat speed somewhere between 14.5 knots and 15 knots and use a delay of 11 seconds between the first and second step. That seems to work quite well.

Kroppyer's spinnacer tool is very helpful to do the calculations. For the Orange cat at 30 knots of wind speed it tells me that a gybe from target TWA at 100% to target TWA in one step incurs a loss of 2 minutes and 15 seconds. The performance drops to 86.9% and because of the high boat speed it takes more than 35 minutes until the performance has recovered to 100%. If one gybes to a TWA of 179.9° the loss is 1 minute and 42 seconds with a performance drop to 88.2%.

That is still quite a lot, because the boat speed at a TWA of 179.9° is 23.7 knots, much more than 14 to 15 as necessary for a good two step gybe. To improve on that one can do what psail in a [forum thread](#) from last year calls a square root gybe. He calls it bad sportsmanship. Decide for yourself if you want to try it.

rumskib

February 2017