

This time we studied seven races in Australia, Japan, and China from 2022 to 2024, analyzed the performance of Williams team and Haas team.

1.开头总览

First, let me introduce the general background of these two teams. The Williams team currently remains Albon and Sargeant, Latifi terminated his contract with Williams in 2022. Similarly, the Haas team currently remains two members, Magnussen and Hulkenberg, Schumacher also terminated his contract with Haas in 2022. We will mainly focus on the current four players.

The rankings are shown in the pictures. The left picture means the finishing position of the race. We can see that Hülkenberg's performance is stable and best, followed by Magnussen, Albon's variance is high, and has a poor performance together with Sargeant. The right picture represents the changes of position between the start and the end of the race. If the difference is more positive and the value is larger, that means the player's performance is better. It can be seen that Hülkenberg and Magnussen still performed more outstandingly.

We found that our players' rankings are almost all outside the top ten, so we fitted a model to make the difference of their scores be more obvious. The left picture shows the same conclusion mentioned above that the two players in Haas team perform better, but after deeper research, we find that Albon's DNF rate (did not finish) is very high. In fact, lots of unfinished races happened to occur in the 7 races we studied. So to get a more objective evaluation, we searched all competitions in the past three years and obtained a more reasonable result:

The left picture represents mean of scores, and the right represents the median and variance. As you can see, on the left, Albon's performance should be better than Hülkenberg's at this time, and both of them are very stable. Overall, Albon is slightly better than Hülkenberg, followed by Magnussen, and Sargeant is the poorest.

Next part will be introduced by my teammate.

2.2024 年澳大利亚大奖赛

3.2022 年日本比赛简述

In addition, we also studied the media reports and the players' interviews of each race. Interestingly, in the 2022 Japanese race, Schumacher said that the team suggested the wrong strategy for his tires, which led to his not ideal performance. The track was rugged, and the race was delayed for about two hours due to heavy rain, making the track also slippery. In this case, the team advised Schumacher to use wet tires, but the data and results showed that

this was not a good suggestion. As a comparison with Latifi, who replaced the wet tires with intermediate ones in time, Schumacher failed to achieve the expected speed with wet tires from laps 6 to 10. Although he replaced the tire on lap 11 and did his best on subsequent laps, the gap was large and he finally only ranked 17.

Based on the example above, the environment may affect the tire strategy as well, so we choose four indicators: air temperature, track temperature, wind speed, and humidity for research, with soft, medium and hard tires.

4.赛道温度对车胎策略的影响

We find that air temperature and air humidity do not have much impact, and the wind speed is almost between 1m/s-2m/s, which is a weak secondary wind and will not have much impact either. The key point is that the track temperature may have a large effect on the choice of different tires.

We can see that, when the track temperature declines, players may turn to soft tires. After searching interviews with the media and players, we know that soft tires have stronger grip than hard tires, but they are also more susceptible to damage and heat. In the early stages of a race, track temperature will be higher with large amounts of heating tires, and using soft tires at this time may not be a good strategy.

5.总结

In the 7 games, Williams performs worse than Haas. The main reason is that Albon has more accidents, but Albon's overall performance is averagely good and stable over the years.

From the results of Australia in 2024, ALB's taking over of SAR's car did not affect ALB's performance a lot, instead stimulated ALB's actively competing.

The team's prediction of the weather will greatly affect tire strategy. Wrong decisions may directly lead to unsatisfactory results.

Track temperature also has a certain impact on tire selection. The higher the track temperature is, the less suitable it is to use soft tires for a long time.

感谢聆听

Thanks for listening