# Implementing Compare Seasons/Intervals

## Requirements

**HOME**: It should be possible to select multiple date ranges and compare metrics/data across them, by dragging them from the sidebar onto a chart.

**ANALYSIS**: It should be possible to select intervals across multiple activities and compare them on the analysis charts by dragging them from the sidebar onto a chart (for users that want to compare whole rides we should automatically add a ‘Entire Activity’ interval in the sidebar).

**GENERAL**

1. **BASIC**: It should be possible to just compare all seasons/all intervals on a single plot – each interval/season should adopt distinct colouring (it may be necessary to limit to 5 separate seasons/intervals to ensure this).
2. **DELTA**: It should be possible to show deltas to a baseline season/interval to show variance (see raceshape.com for an excellent example).
3. **LANES**: It should be possible to show data series in separate charts (aka lanes like in stack mode) to compare season./intervals on a series by series basis.
4. SELECTED CHARTS ONLY: Not all charts will support compare at all, of those that do not all charts will support delta or stack since it may not be appropriate to the chart type(see table in appendix)

### Functional Design

**COMPARE REVEAL**

1. Each chart that supports comparisons should have a reveal area that pops up at the bottom of the chart to allow users to drag and drop relevant season/intervals (depending on the view you are in).
2. The compare reveal should appear even if you are not dragging and dropping as a signpost to users that the functionality is there – the compare area should have text ‘Drag and drop activity intervals here to compare…’ but in light colours so it is not too distracting (like in the search box).
3. Compare selection and compare reveal should only be supported in tab mode – since the charts are too small in tiled mode.
4. A season or interval dragged into compare area starts compare mode and each dragged item is shown as a ‘label’ (like tag labels in other apps), the label should have a close ‘x’ on the rhs to remove it (like in the search box).
5. Once a chart is in compare ‘mode’ it should only plot the items in its compare area – i.e. ignore new rides being selected.
6. The compare reveal area should also allow the user to re-order the sequence of the selected items via drag and drop– this should be animated in a similar fashion to reordering tabs in the tab bar. This is to set the ‘first’ as a baseline when charting deltas, but not meaning
7. The compare reveal should also have checkbox widgets (on the RHS) to select delta or separate (lane) views (by default we show all series on a single plot).
8. The compare area should stay open unless it is unpinned when it contains dragged objects (it should also re-open if the cursor leaves and reenters the chart at the reveal area – this way you can close it to look at data but it will re-appear of your cursor moves elsewhere in GC and then comes back again.

**COMPARE REVEAL SELECTED ITEMS**

1. Each dropped item should be selectable – on/off to turn the associated curve data on/off in the chart.
2. Each dropped item should have a colour scheme applied to it to ensure it plots with distinct values. The items in the compare area should be coloured according to the colour scheme that has been applied.
3. Each dropped item should be removable by clicking on a x label on the right hand side (like in the search/filter box)
4. It would be great to have a mechanism to switch colour schemes for a selected item, but maybe do that as a refinement.

**CHARTS**

The charts that should support compare and the different types of compares / modes are shown in the table below, if it is not in the table then it will not support compare.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Chart | BASIC | LANES | DELTA | EFFORT |
| LTM | YES | YES | YES | HIGH |
| AllPlot | YES | YES | YES | V. HIGH |
| CP | YES | NO | NO | LOW |
| Histogram | YES | NO | NO | MEDIUM |
| Scatter | YES | NO | NO | LOW |
| PfPv | YES | NO | NO | LOW |

### Implementation Plan

The column on the right is my guess at the level of effort that is going to be required to implement in each chart assuming the compare reveal and colour schemes stuff is all implemented up front and common to all charts (which I think it will).

I think we should implement the compare UX for dragging and dropping and then implement CP, PfPv, Scatter and Histogram to get a sense of the challenges and code we can re-use etc. Then once that is done we should attack LTM and AllPlot WITHOUT LANES. Then lastly add the lanes view to AllPlot and LTM.