# Implementing Compare Seasons/Intervals

## Requirements

It should be possible to compare intervals or seasons across the same or different athletes by plotting their data on a selection of the current charts.

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

**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 compare set (for users that want to compare whole rides we should automatically add a ‘Entire Activity’ interval in the sidebar).

**COMPARE SETS:**  A pane should ‘popup’ to allow users to drop intervals/seasons into a set for charting. It should be possible to name and save this set to allow the user to recall.

**CHARTS**

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. **ALIGN ALT/GPS**: It should be possible to overlay interval data by aligning to GPS data or the altitude profile if not then use time/distance only.
5. **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 – when in compare ‘mode’ charts that do not support compare should be hidden.

### Functional Design

**COMPARE PANE**

1. Each view that supports comparisons should have a compare pane that pops up at the bottom of the view to allow users to drag and drop relevant season/intervals (depending on the view you are in).
2. The toolbar should have a button to open or close the compare pane.
3. When the compare pane is open all charts that do not support compare should be hidden and the title of all charts should have an indicator to show they are in ‘compare mode’ (either use a different colour for the title or an icon of some kind, or both).
4. The compare pane should appear automatically if you drag a season or interval from the sidebar – 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).
5. A season or interval dropped into the compare pane should be shown with summary information (e.g. interval metrics, summary metrics as configured for the ride summary window).
6. Once a chart is in compare ‘mode’ it should only plot the items in its compare area – i.e. ignore new rides being selected.
7. The compare pane 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
8. The compare pane should also have checkbox widgets (on the RHS) to align using alt/gps, select delta view and separate (lane) views (by default we show all series on a single plot).
9. The compare area should be closable manually but that should end compare mode, this should also be the behavior from the toolbar button.

**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 | MEDIUM |
| 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.