CrewAlert Fatigue Mitigation Functionality

Functionality for identifying science-guided fatigue mitigation strategies.

Applying fatigue training and scientific advice in your daily life can be difficult and time consuming. CrewAlert Pro has a built-in function for applying science-based principles to the roster context, calculating fatigue mitigation strategies automatically within seconds.

Limitations

The fatigue mitigation functionality is provided **for reference only** and calculated for an average individual. The strategy produced might not apply well to you personally.

In addition, the functionality optimizes the predicted alertness only for a certain point in time (chosen by you). This means that the strategy provided could affect alertness negatively at another point in time. Always remember that you are responsible for your fitness for duty at all times.

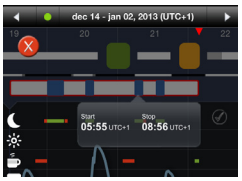
Initiating Fatigue Mitigation

From the Graph view, touch-and-hold any point in the future to see fatigue mitigation strategies with potential for boosting alertness. After accepting the warning dialogue, adjust the time and date. Tap Done, and CrewAlert investigates up to 900,000 possible sleep and light exposure strategies. Strategies are calculated for the 48 hours before the time chosen (72 hours on faster devices). This typically takes 4–10 seconds.

Results

CrewAlert presents the strategies in two parts:

A new sleep-wake log with the ideal sleep-wake pattern, which maximizes alertness and minimizes the negative impact on natural sleep patterns. The suggested sleep-wake log has a red border distinguishing it from your manually created sleep-wake logs. Delete them or keep them as a reminder. The red border is removed once the log is modified. Tap the blue sleep periods, to view the details.



A semi-transparent overlay appears, with eight mitigation aspects (for example: sleep, light exposure, and caffeine).

Tap the icons on the left for more information on each aspect. Tap the red and green markers for each aspect, to view the details. A red bar indicates “avoid”, and green indicates “apply”.

Fine-tuning

If the fatigue mitigation strategy contains sleep or wake that does not work for you, you can add an s/w log in the future – and the optimizer will take that into account. This is like asking the system “what would be a possible strategy for staying awake these four hours in the afternoon local time?”

The optimizer takes into account all prior duties, sleep-wake patterns, and your personal settings (such as diurnal type and habitual sleep length).

Availability

The fatigue mitigation functionality is only available in CrewAlert Pro, from version 2.0 onwards. The Pro version is available in most major markets.

See the FAQ on the next page →

Commercial Aviation

Learn more about what we offer.

For more information about Jeppesen Fatigue Risk Management, visit jeppesen.com/FRM.

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Fatigue Mitigation FAQ.

Why did a flight on my roster shift from green to red when I used this functionality?

This is the effect of optimization only for the chosen point in time. This functionality provides "possible strategies for maximizing alertness at chosen time for an average individual." If an active flight becomes worse, the strategy might not be a good one—unless several other flights shifted from red to green.

Why did the flight that I requested a strategy for shift from green to red?

CrewAlert determines the color of a duty based on the predicted level of alertness at top-of-descent (TOD). It is possible that predicted alertness at the time chosen for "optimization" has improved, but the TOD prediction has become worse.

Why does the graph improve only marginally when I run the functionality?

We are using the prediction model to gage the effectiveness of the mitigation strategy. The model, however, does not include all aspects in a quantifiable way. The graph only responds to the new sleep-wake pattern and light exposure.

It could also be that, given available time and duties, very little can be done. Time of day (body clock time) is a strong component in alertness, making night flights difficult to improve, while keeping close to realistic and natural sleep patterns.

Why am I getting a strategy for other points in time in addition to the time I asked for?

Initially, the functionality optimizes alertness only for the chosen point in time. Next, it takes a "glance" at active flights and provides apply/avoid markers with potential of improving low-alertness situations on those flights, without compromising the initial result.

Some sleep patterns presented interfere with "social time" at the arrival station.

In scenarios with large time zone transitions, the body clock gets out of synch with local time, and the ideal times for sleep might occur during the day. The functionality pays little attention to social needs. To stay awake at a certain time to benefit from local daytime conditions, or to sleep at a time you are less likely to be disturbed, add a sleep-wake log. As it is not easy to bank sleep beforehand, sleep deprivation is the main tool for shifting sleep patterns. The functionality often provides a strategy based on staying up longer, or forcing yourself up early. These strategies may be tough to apply, but the functionality minimizes this offset-time, and prioritizes staying up late over getting up early.

Why is the marker for "avoid light" displayed during proposed sleep? Isn't that a given?

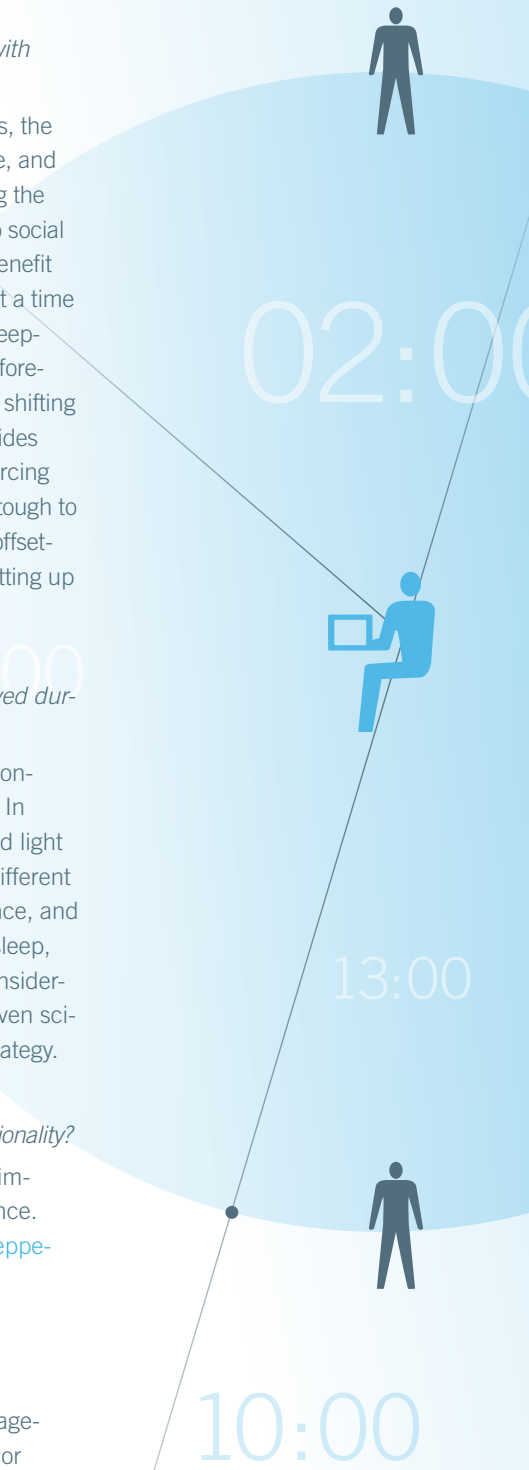
Certain aspects may seem redundant or contradictory, but are still there as a back-up. In this case, read it as "it is important to avoid light exposure, if I wake up at this time". The different aspects are displayed in order of importance, and can be read from the top. First priority is sleep, then light, then caffeine. Note: there is considerable variability between individuals, and even scientists do not always agree on the best strategy.

Can I propose an improvement to this functionality?

Of course! We are constantly in search of improvements based on operational experience. Please contact us at crewalert_support@jeppesen.com and let us know!

For more information

Please see the Jeppesen fatigue risk management offering at www.jeppesen.com/FRM or contact us at FRM@jeppesen.com for more information.



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