How birds weather the weather: avian migration in the mid-latitudes

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Publication date
2012

Citation for published version (APA):
Measured nightly altitude distributions of $pBd$, $Tw$, $SH$, $Cp$, and $T$ (only the freezing point) along with associated altitude distributions of $pBd$ predicted by our final GAM models for spring and autumn are shown for altitudes between 0.2 and 4 km in bins of 200 m. On the right of each pair are measured distributions of $pBd$. Altitude distributions of $Tw$ (orange line; ms$^{-1}$) and $RH$ (purple line; %) are shown superimposed on top of the measured $pBd$ distributions along with a light blue horizontal line at the altitude at which freezing temperatures occurred. The range of $Tw$ and $RH$ values are indicated along the top of the lower x-axis and along the upper x-axis, respectively, and a vertical gray line indicates the transition point from negative to positive $Tw$ values. Predicted distributions of $pBd$ are shown on the left, with a black line indicating the weighted average distribution of $pBd$ for that season. The color of the measured and predicted distributions of $pBd$ indicates the measured intensity of migration on a given night from blue (least intense) through green to red (most intense). In between the predicted and measured distributions of $pBd$ is a graphical representation of the value of $Cp$ (%) for each altitude bin, with white indicating no $Cp$ and black indicating 100% $Cp$. Altitude bins in the predicted distribution shown in transparent gray do not have a predicted value due to missing predictor variables, and missing values of $Cp$ are indicated by an ‘X’. The numeric value given in parentheses next to the label “Measured” indicates the percentage of nights from that season with less-intense migration. The first value next to the label “Predicted” indicates the Spearman’s $\rho$ correlation between the measured and predicted distributions of $pBd$ and the second value indicates the proportion of variability in the measured distribution of
$pBd$ explained by the predicted distribution of $pBd$. The title of each plot indicates the night (at sunset) during which the conditions were measured. Note that Appendix E is not available in the print version of this thesis; however, it is available in its entirety at [http://dare.uva.nl/record/421932](http://dare.uva.nl/record/421932).