Determining the Geographical Origin of Down and Feathers

As globalization increases in prevalence, desires to determine the country of origin of goods becomes more important. Consumers are willing to pay a premium for products declaring their location of origin. As a consequence, fraudulently labeling products becomes a tempting practice.

IDFL has found a method to help determine the location origin of materials, which can be applied to down and feathers. The method makes use of stable isotope ratios and natural variations in these ratios due to fractionation events, which occur in any process that preferentially favors one of the isotopes over the other. Precipitation is a good example of fractionation. As the precipitation forms, water containing the heavier isotopes, ^{2}H and ^{18}O, preferentially form the liquid phase and rain out first, leaving the lighter isotopes behind to rain out later. Consequently, the heavier isotopes are concentrated more strongly along coastlines, at low latitudes, and at low altitudes.

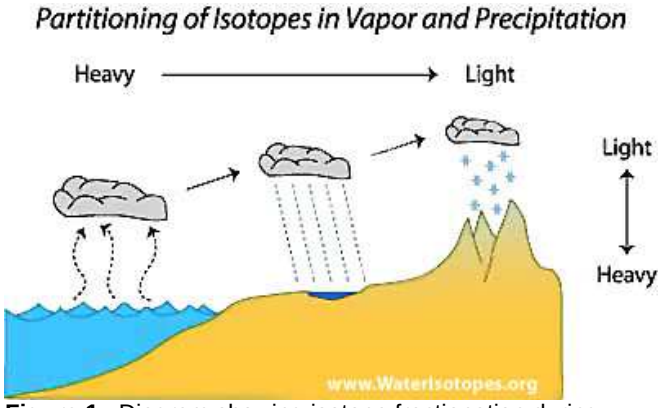

Figure 1. Diagram showing isotope fractionation during precipitation. Heavy isotopes rain out first.

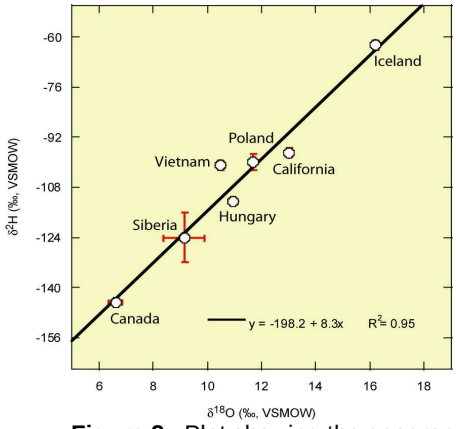

Figure 2. Plot showing the geographical relationship between stable isotopes.

To protect the market value of regionally distinctive down and feathers, IDFL is offering a test that will analyze the ratio of stable isotopes. We are constantly adding to our database of authentic samples. With enough known samples in our database we will be able to determine the geographical origin of down and feathers based on the ratio of stable isotopes.

This test costs $450 USD and takes approximately 4 to 6 weeks to complete. Please contact Braden Andersen (bandersen@idfl.com) if you are interested.

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