

Lightning

- ▶ Atmospheric discharge of **electricity**.
- ▶ Often accompanied by **thunder**.
- ▶ Travels at **60,000 m/s**
- ▶ **30,000 °C** (54,000 °F)



Photographing Lightning – A Tricky Problem!

- ▶ Hard to predict.
- ▶ Over pretty quickly.
- ▶ Cameras can get **wet**.



CHDK Firmware 'CHDK 0.9.8-766'

Build: May 24 2009 12:33:15

Camera: a720 - 100c

Free Software (CHDK) offers two approaches:

- ▶ The old way: **Wait and hope**
- ▶ The new way: **Luminance detection**

- ▶ Using a CHDK **intervalometer** script to take long-exposure shots repeatedly.
- ▶ **1-15 second exposures** (1-second can work better for lightning) can keep shutter open between 80-95% of the time.
- ▶ **Dark frame subtraction** addresses noise from long exposures.
- ▶ Tends to work poorly **during the day**.

- ▶ A user named “MX3” wrote motion detection functionality for CHDK using **variance in luminance**.
- ▶ Triggered by the “**lead**” **strike** which immediately precedes every main lightning strike.
- ▶ **Every photograph** on camera has a lightning strike.
- ▶ **Works in daylight or even without tripod.**









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