**METADATA OF TIME PERIODS USED FOR RECONSTRUCTION OF BAROMETRIC DAILY SERIES**

**OF EDINBURGH (1785-1880)**

**Nr. INITIAL DATE ENDING DATE TOTAL MONTHS TIME OBSERVATION**

**LOCATION ALTITUDE ARCHIVE REFERENCES**

**NOTES**

**1** **01/01/1785 25/01/1804** 229/1152 Sunrise

Dudingston (Edinburgh Mag.) 130 f. = 39.62 m. Acc.10069, Ms. 35

Other scattered time observation: 1200, 1400

**2** **26/01/1804 05/03/1815** 133/1152 0900 am

Dunfermline (Henry Fergus) c.300 f. = 91.44 m. Acc.10069, Ms. 81

Edinburgh (G. Waterstone) c.250 f. = 76.20 Acc.10776, Ms. 1, Acc.10069, Ms. 84 Gaps covered with ob. 0800 am

**3** **06/03/1815 31/12/1819** 58/1152 0800 am

Edinburgh? (McClesfield Courier) c.250 f. = 76.20 m. Acc.10069, Ms. 84

**4** **01/01/1820 31/12/1820** 12/1152 0900 am

Dunfermline (Henry Fergus) c.300 f. = 91.44 m. Acc.10069, Ms. 81

**5** **01/01/1821 31/12/1823** 36/1152 1000 am

Canonmills (Edinburgh?) c.250 f. = 76.20 m. Acc. 10069, Ms.3;

Acc. 10069, Ms. 4; Acc. 10069, Ms. 5

**6** **01/01/1824 30/04/1826** 89/1152 1000 am

Canaan Cottage (Edinburgh) (Alexander Adie) 260 f. = 79.25 m. Acc.10069, Ms. 40

**6bis 01/05/1826 31/05/1831**

Same conditions than series Nr. 6, but changing altitude to c. 300 f. = 91.44 m.

**7** **01/06/1831 25/05/1838** 84/1152 1000 am

Regent Terrace (Edinburgh) (Alexander Adie) 246 f. = 74.98 m. Acc.10069, Ms. 88

**8** **26/05/1838 31/05/1838** --/1152 1000 am

Edinburgh (Lincoln Library) c.250 f. = 79.25 m. Acc.10069, Ms. 20

**9** **01/06/1838 31/12/1839** 19/1152 1000 am

Canaan Cottage (Edinburgh) (Alexander Adie) 246 f. = 74.98 m. Acc.10069, Ms. 89/90

**10** **01/01/1840 31/12/1851** 144/1152 1000 am

¿? (Robert C. Mossman) Ob. adjusted to 0º and 0m. Acc.10069, Ms. 42

**11** **01/01/1852 31/12/1856** 60/1152 ¿?

¿? ¿? Acc.10069, Ms. 30 i 30a

**12** **01/01/1857 31/12/1880** 288/1152 0800 am

Leith. (Robert C. Mossman) Ob. adjusted to 0º and 0m. Acc.10069, Ms. 42/44

**FIELD WORK**

Digitization work was developped by Dr. Marc Prohom and Dr. Mariano Barriendos during three weeks of Summer 2003.

Original manuscripts with data were consulted on funds of National Archives of Scotland (NAS), Edinburgh.

All codes used in this metadata and Excel files are original of NAS for period of data collection.

**EXPLANATION OF CONTENT OF COLUMNS OF EXCEL FILES**

**Columns A/D: Absolute calendar.**

Civil year of Gregorian Calendar (AD or CE)

A: Year

B: Month

C: Day

D: Nr. of day by year

**Columns E/J: Pressure Data**

E: DEF. FINAL.

Definitive data to be copied to other files.

F: DEF. CORR.

Definitive data after correction by altitude to 0m. a.s.l. with a simple formula.

G: DEF. dPa.

Data conversion from measurement units on mmHg. to decapascals.

H: DEF. mm.

Data conversion from original measurement (inches system) to mmHg. (metric system)

I: DEF.

Original data in the same format than original manuscript document but after a revision for writting errors, editing or typo mistakes.

J: ORIGIN.

Original data in the same format than original manuscript document BUT preserving ALL EVIDENT MISTAKES existing in original manuscript.

Please, note Column J is original data, BUT including all original mistakes of original documentary sources.

I suggest use of Column I (DEF) because is result of a revision process to detect spurious values.

Criteria for preservation of original data without modifications, for later applications, was an idea developped during ADVICE Project (EU project, coordinated by Dr. Ph. Jones).

**Columns O/P:**

Observations and notes.

**CONVERSIONS APPLIED FOR TRANSFORMATION OF ORIGINAL DATA**

Criteria for time observation:

We work on different countries with different methods and traditions. then, we look for a more common observation. Usually, we fins midday (12am) like more common time hour for observations. When this time hour doesn’t have observation, we digitize closer possible time hour.

Criteria for measurement units transformation:

Considering strong differences between values of inches system around european cities, and our ignorance about traditions or localisms for Scotland during 18th and 19 centuries, we applied a more general criteria for all data series.

Original documentary series don’t explain what inches system are using. Then, considering we work historical period after Union Act (1707), we applied reference of english inch and foot. On the other hand, barometers can arrive from other cities and countries. Identification of exact system of inches would be tedious. For example, firsts instruments in Barcelona arrived from France (Royal société de Medicine de Paris). But we don’t know from what city!! We apply Paris inches system but is impossible to arrive to exactitude of 100%.

considering different books of Metrology can offer different conversions, we applied data from a Metrology Handbook used in Spain during change of historical systems to Metric System (years 1855-1865), where:

1 foot (English foot) = 0.3048 m.

1 inch (English inch) = 25.3995 mm.

(we always apply criteria for convertions to work and calculate data with 4 decimals)

For later conversions we use following criteria:

Inches and hundredths of inch to mmHg.: original value \* 0.2539 = value in mmHg.

mmHg. to decapascals: original value \* 13,33 = value in dPa.

Adjustment by altitude, to reduce original value to 0m. a.s.l.

We applied a simple formula:

“original value in dPa” + ((9,81\*1,1685\*altitude observatory in meters)/10 = “final value in dPa”

Adjustements for altitude and unit’s conversions were decided by Prof. Dr. Javier Martín Vide (University of Barcelona) and accepted by consortium of ADVICE and IMPROVE Projects for all series rescued by our team.

Note:

Works of Mr. Robert C. Mossman indicate that gravity adjustement is not applied. If this adjustement is requird, a systematic increase must be applied to all data of 0,711 mmHg = 9,5 dPa.

For previous observers, this adjustement is unexisting or not considered.

**DEFINITIVE COMPOSITION OF DATA SERIES FOR EDINBURGH DAILY PRESSURE OBSERVATIONS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Nr.** | **Nr.**  **Months** | **Initial**  **Date** | | **Final**  **Date** | | **Location / Observer** | **Code NAS (Acc. Ms.)**  **Documentary source reference** | |
| 1 | 228 | 1785 | 1 | 1803 | 12 | Arthur’s Seat / Duddington | 10069 | 35 |
| 2 | 144 | 1803 | 1 | 1814 | 12 | Dumfermline / | 10069 | 81 |
| 3 | 96 | 1809 | 1 | 1816 | 12 | / George Waterstone | 10076 | 1 |
| 4 | 72 | 1814 | 1 | 1819 | 12 | / Macclesfield Courier | 10069 | 84 |
| 5 | 12 | 1820 | 1 | 1820 | 12 | Dumfermline / | 10069 | 81 |
| 6 | 12 | 1821 | 1 | 1821 | 12 | Unknown | 10069 | 3 |
| 7 | 36 | 1822 | 1 | 1824 | 12 | Canonmills / | 10069 | 4 |
| 8 | 89 | 1824 | 1 | 1831 | 5 | Canaan Cottage / | 10069 | 40 |
| 9 | 114 | 1831 | 1 | 1840 | 6 | Lincoln Library / | 10069 | 20 |
| 10 | 84 | 1831 | 6 | 1838 | 5 | Regent Terrace / | 10069 | 88 |
| 11 | 17 | 1832 | 1 | 1833 | 5 | / Allerby | 10069 | 20 |
| 12 | 148 | 1838 | 6 | 1850 | 9 | Canaan Cottage / | 10069 | 89/90 |
| 13 | 5 | 1839 | 1 | 1839 | 5 | Unknown | 10069 | 81 |
| 14 | 144 | 1840 | 1 | 1851 | 12 | Mossman | 10069 | 42 |
| 15 | 48 | 1851 | 1 | 1854 | 12 | Mossman? | 10069 | 30 |
| 16 | 72 | 1855 | 1 | 1860 | 12 | Mossman? | 10069 | 30a |
| 17 | 48 | 1857 | 1 | 1860 | 12 | Unknown | 10069 | 42 |
| 18 | 240 | 1861 | 1 | 1880 | 12 | Leith / Mossman | 10069 | 44 |

Total digitized dates for period 1785-1880: 1152 months (34560 days).

Total digitized data, including overlapings: 1609 months (48270 days).

