**Huewelerbach**

**Huewelerbach catchment, Luxembourg**

### Basin characteristics

**River Basin / River Basin (according EU-WFD)**
Upper Attel basin / Mosel basin

**Operation (from...to...)**
Since autumn 2001

**Gauge coordinates / Gauge datum:**
49°43′0.1″ N / 5°54′20.5″ E / 288.50 m a.s.l.

**Catchment area:**
2.7 km²

**Elevation range:**
289 m - 401 m a.s.l.

**Basin type:**
Mountainous

**Climatic parameters:**
(mean precipitation, temperature and others)
- Mean precipitation: 796 mm (2003–2008)
- Average temperature: 8.8 °C (2005–2008)
- Land use: 91.5% forest, 7% grassland, 1.5% urbanised

**Soils:**
- 10% grassland
- 90% Norwegian spruce
- Hypolvic Arenosol, Regosol (Arenic, Planosol (Ruptic, Clayic))

**Hydrogeology:**
- Porous and fractured aquifer, average HC of the sandstone in Luxembourg: 5.10⁻¹ m/s
- Hypoluvi c Are nos ol

**Special basin characteristics**
- Name of catchment: Lange Bramke
- Catchment Area: 0.76 km²
- Mean hydrograph / Pardé flow regime
- Monthly mean flow observed in 2005-2008
- Discharge observed in the western creek of the Huewelerbach is stable and is due to very constant levels are reached very rapidly, indicating the influence of a rapid surface and/or subsurface runoff.

### Measured hydrological parameters

#### Measuring period
- Meteorological station
  - IWRH (GR-BW/BVDC)
  - April 2003 ---
- Groundwater level
  - May 2003 ---
- Chemical analysis
  - (ions-cations-others)
  - 2002 ---
- Sediment trapping
  - 2005 - 2006
- Interception plot
  - (beeches, around 150 y old)

#### Temperature resolution and Number of stations
- Stream flow: 15 min
- Meteorological station: 15 min
- Groundwater level: 1 h
- Chemical analysis: 1 h to 1 week
- Sediment trapping: 15 min
- Interception plot: 15 min

#### Number of stations
- 1 (not continuous)
- 1
- 1
- 1
- 1

### Instrumentation and data

**Temporal resolution**
- 1 h
- 15 min
- 1 h
- 1 h
- 1 h
- 15 min

### Applied models

1. Various conceptual models with regionalised parameters
2. EMMA for hydrograph decomposition

### Main scientific results

1. At baseflow level, water is coming from the springs emerging at the base of the Luxembourg Sandstone (at the interface with the underlying marls), with a very stable chemical signal.
2. After a rainfall event, the falling limb of the hydrograph is systematically very steep and initial baseflow levels are reached very rapidly, indicating the influence of a rapid surface and/or subsurface runoff.
3. Discharge observed in the western creek of the Huewelerbach is stable and is due to very constant feeding through springs located in the sandstone, whereas the discharge of the southern creek gets higher contributions through surface runoff. Most storm runoff eventually is produced in the footslope area, where the two creeks converge. In this part of the basin, the soils are clayey (Planosol (Ruptic, Clayic))
4. At peak flow, the overland flow contribution can reach up to 75%.
5. The piezographs in the lower, mainly alluvial, part of the basin show a rapid reaction to all rainfall events. The water table is close to the surface during wet periods.
6. At the interception plot, located in a beech forest, streamflow and throughfall are continuously measured all over the year at very high spatial and temporal resolution. Average stemflow ranges from 5 to 6% and total rainfall interception varies between 0 to 10% in winter and reaches up to 20% in summer.
7. The sediments exported from the basin originate principally from bed sediments, with major fluxes occurring during flood events.

### Key references for the basin


### Contact

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