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ERB -Euro-mediterranean network of experimental and representative basins

University of Natural Resources and Life Sciences Vienna
Department for Water, Atmosphere and Environment **1)**

Sektion IV - Wasser
Abteilung IV/4 – Wasserhaushalt (HZB) **2)**

MINISTERIUM FÜR EIN LEBENSWERTES ÖSTERREICH

Inventory of the experimental basins in Austria

Gabriele Müller [2)], Hubert Holzmann [1)]

Summary

Recently an initiative to investigate the Austrian activities of hydrological experimental field monitoring was started. It is a joint action of the Austrian Hydrological Survey, the Austrian Society of Hydrology and the national ERB correspondent. The aim is the assessment of the actual status and the update of an inventory from the year 2002 (Nobilis et a., 2002). The outcome will be summarized in a national report and supports the Austrian and international hydrological community in recognizing the current activities in field observation and monitoring.

Introduction / Objectives

In Austria exist a plenty of hydro-meteorological investigations in small experimental basins. But in the past many observation programs were carried out in the frame of research projects with temporal limitations. Nowadays several new initiatives aim the establishment of permanent monitoring sites. The responsibilities for the current activities is spread over different institutions like universities, research institutes and public services involving different scientific branches like for instance hydrology, meteorology, glaciology, torrent- and avalanche sciences, forestry, soil science and physical geography. Due to these widespread activities it was not able so far to summarize and publish the activities of all branches consistently.

The current initiative of the Austrian Hydrological Survey, the Austrian Society of Hydrology and the national IHP commission represented by the nationalERB forum aims the description of the current Austrian field monitoring activities and will publish the outcome in a periodic report journal of the Austrian Hydrological Survey.

Monitoring activities in Austria

The last inventory of the hydrological test basins in Austria was carried out in the year 2002. These activities were published in Nobilis et al. (2002). Table 1 lists the specific basins including areas, elevation and river basins.

Table 1: *Hydrological test basins in Austria - state 2002 (from Nobilis et al., 2002 - modified).*

Nr	Basin Name	Institute	Province	Landscape	Area (km2)	Elevation (m a. sl.)	River Basin
1.	Pöllau mit Teilgebiet Höhenhansl	A, B	Steiermark	Mittelgebirge	58,3	398 - 1280	Raab
2.	Annabach	A	Steiermark	Stadtgebiet	0,74	379 - 425	Mur
3.	Peggau-Tanneben-Semriach	B	Steiermark	Mittelgebirge	22,8	400 - 1190	Mur
4.	Grub	C	Niederösterreich	Alpenvorland	2,89	257 - 400	Donau
5.	Petzenkirchen-Seitengraben	C	Niederösterreich	Alpenvorland	0,655	260 - 326	Donau
6.	Zöbelboden	D	Oberösterreich	Mittelgebirge	0,89	500 - 1000	Enns
7.	Nassfeld	B	Kärnten	Hochgebirge	8,1	1121 - 2280	Drau
8.	Oselitzenbach	E	Kärnten	Hochgebirge	24,1	600 - 2280	Drau
9.	Gradenbach	E	Kärnten	Hochgebirge	32,5	1045 - 3283	Drau
10.	Wartschenbach	F	Tirol	Hochgebirge	2,5	683 - 2210	Drau
11.	Glatzbach	F	Tirol	Hochgebirge	1,34	2440 - 2920	Drau
12.	Schmittenbach	E	Salzburg	Hochgebirge	7,3	750 - 1965	Salzach
13.	Löhnersbach	G	Salzburg	Hochgebirge	16,0	1091 - 2227	Salzach
14.	Dürnbach	E	Salzburg	Hochgebirge	9,0	840 - 2299	Salzach
15.	Vernagt-EG	H	Tirol	Gletscherregion	11,44	2635 - 3633	Inn
16.	*Keerbach*	*E*	*Niederösterreich*	*Mittelgebirge*	*2,2*	*750 - 1766*	*Donau*
17.	*Graschnitzbach*	*E*	*Steiermark*	*Mittelgebirge*	*17,8*	*520 - 1629*	*Mur*
18.	*Mitteregqbach*	*I*	*Steiermark*	*Hochgebirge*	*21,35*	*757 - 2210*	*Enns*
19.	*Salk*	*I*	*Steiermark*	*Hochgebirge*	*140,9*	*901 - 2599*	*Enns*
20.	*Mödritschbach*	*E*	*Kärnten*	*Hochgebirge*	*6,8*	*609 - 2657*	*Drau*

Betreiber:
A - Inst. f. Hydraulik u. Hydrologie, TU Graz; **B** - Inst. f. Hydrogeologie u. Geothermie, Joanneum Research Graz;
C - Inst. f. Kulturtechnik u. Bodenwasserhaushalt, Petzenkirchen; **D** - Umweltbundesamt Wien; **E** - Inst. f. Lawinen- u. Wildbachverbauung, Abt. Wildbachhydrologie, FBVA Wien; **F** - Inst. f. alpine Naturgefahren u. forstliches Ingenieurwesen, BOKU; **G** - Inst. f. Hydraulik, Gewässerkunde u. Wasserwirtschaft, TU Wien; **H** - BAW, Kommission für Glaziologie; **I** - Inst. f. Wasserwirtschaft, Hydrologie u. konstruktiven Wasserbau, BOKU

Some of the basins are not continuously monitored and some monitoring has been cancelled until now (see figure 1). But several test basins could be added since 2002 and are listed in table 2.

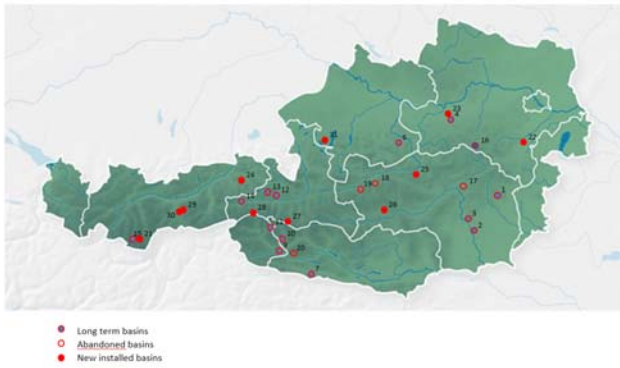

Fig. 1: *Location and status of experimental test basins in Austria.*

Updated inventory state

It has to be acknowledged, that several institutions followed the call to update and promote their monitoring activities and to provide their contributions for the report. Besides the existing ongoing activities, several new initiatives were established in Austria and are explicitly listed in table 2.

Table 2: *Updated or newly installed basins.*

Nr.	*Basin Name*	*Area (km²)*	*Hydrol. Regime*	*Institution / Name*
21	Rofental	98.1	nivo-glazial	Uni Innsbruck
22	Rosalia	2.3	nival	Uni BOKU
23	HOAL Petzenkirchen	0.66	nival	TU Wien
24	Brixenbach	9.2	nivo-pluvial	Uni Innsbruck
25	Johnsbachtal	65	nivo-pluvial	Uni Graz
26	Schoettlbach	70.8	nivo-pluvial	Uni Graz
27	Rauriser Sonnblick	2.8	glacial	ZAMG
28	Stubacher Sonnblick	0.95	glacial	HD Salzburg
29	Lizumbach	6.6	nival	BFW Innsbruck
30	Mölsbach	13.5	nival	BFW Innsbruck
31	Mondsee	248	nivo-pluvial	Uni Salzburg

International networks and data visualization

There are comparable inventories of hydrological test basins on the international and European level. The following example addresses the initiative established by the German IHP commission. The basins are listed in an electronic data base with interactive visualization of the location (see figure 2) including the listing of the key parameters of the test basin. The latter can be downloaded in a poster format or are available as an electronic report (see Schumann et al., 2010).

Fig. 2: *ERB and Euro-Friend test basins (from Schumann et al., 2010).*

Also for ERB (Euro-mediterranean network of experimental and representative basins) the promotion of field monitoring activities in the member countries is one of the mayor objectives of the network. More information can be found in the ERB homepage, which was updated recently (see related link).

Benefits of the inventory

The update of the experimental basins inventory provides information which are beneficial both for the hydrologic research community and the responsible operating institutions as well. The positive effects are as follows:

- Promoting the individual monitoring activities to the national and international community,
- providing a summary of the Austrian activities,
- to become acquainted with innovative measurement techniques,
- providing an interface for interdisciplinary activities,
- demonstration of complementary observations of different branches,
- etc.

In the ideal case this inventory will stimulate bilateral contacts between institutions which may foster future cooperation and joint activities. General benefits of hydrological experimental basins for the deeper understanding of hydrological processes and interactions are addressed in Holko et al. (2015) or in Blöschl et al. (2015).

Links and References

Mitteilungsblätter des Hydrographischen Dienstes Österreichs:
http://www.bmlfuw.gv.at/publikationen/wasser/hydrographischer_dienst.html

Deutsche / Europäische Inventur experimenteller Kleineinzugsgebiete (Heft 10):
http://www.ihp-germany.de/_service/03_Publikationen/01_IHP_Schriftenreihe/schriftenreihe_de.html

Österreichische Gesellschaft für Hydrologie ÖGH:
www.oegh.ac.at/

ERB - Euro-mediterranean network of experimental and representative basins:
http://erb-network.simdif.com/

Euro-FRIEND: Small hydrological research basins:
http://ne-friend.bafg.de/servlet/is/17796/

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Nobilis F., Bergmann H., Müller G. (2002): Hydrologische Versuchsgebiete in Österreich – Erfahrungen, nationale und internationale Anforderungen. Mitteilungsblatt des HD in Österreich, Nr. 81.

Schumann S., Schmalz B., Meesenburg H. and Schröder U. (2010): Status and Perspectives of Hydrology in Small Basins. IHP/HWRP-Berichte, Heft 10.

Contact:
Prof. Hubert HOZMANN
University of Natural Resources and Life Sciences Vienna
Department for Water, Atmosphere and Environment
Muthgasse 18, 1190 Vienna
E-Mail: hubert.holzmann@boku.ac.at

Final report

I am interested to receive the final report of the Austrian Hydrological Survey after its publication:

Name	Institution	E-Mail Adress