Agrometeorological services at Slovak Hydrometeorological Institute

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Agrometeorological services at SHMI

1. ex-post assessments/reports
    1. weekly
    2. monthly
    3. annual
2. operational services
3. forecasting

Ex-post assessments/reports

- weekly assessments for agriculturally focused newspapers (Roľnícke noviny)
- focused on:
  - weather situation
  - air temperature
  - surface temperature
  - soil temperature
  - precipitation
  - sunshine duration
  - available water capacity in soil
- briefly forecast for next week

4 / 7. 9. 2016

agrometeorologické informácie

Prúdenie teplého vzduchu

■ V priebehu prvých septembrových dní sa nadalej otepľovalo. Začiatok klimatologickej jesene bol najteplejší na juhu stredného Slovenska, kde v minulý štvrtok namerali 28,3 °C. Od piatku sa opäť začala séria tropických dní. V piatok a v sobotu dosiahla teplota vzduchu v Žihárci 30 °C, a v nedeľu boli tropické hodnoty teploty vzduchu aj v Podhájskej, v Bratislave a na Záhorí, pričom najteplejšie bolo v Bratislave na Kolibe: 30,4 °C.

■ Zrážky sa v minulom týždni vyskytli iba na jeho začiatku a na konci. Na viacerých miestach boli sprevádzané búrkami, a tak boli ich týždenné úhrny priestorovo dosť premenlivé. Väčšinou napršalo v intervale od 3 do 20 milimetrov, a ešte menej to bolo na niektorých miestach na juhu stredného Slovenska a aj v určitých oblastiach východného Slovenska, kde týždenné úhrny zrážok dosiahli iba nemateľné množstvo, prípadne niekoľko desatín milimetra.

■ Po daždivom začiatku týždňa začne počasie na Slovensku opäť priaznivo ovplyvňovať tlaková výš, ktorá bude postupovať cez strednú Európu smerom na severovýchod až východ, a po jej zadnom okraji sa od juhu až juhozápadu obnoví prúdenie teplého vzduchu. Počasie bude mať stabilný charakter. Ráno sa môžu v nižších polohách vytvárať hmly alebo nízka inverzná oblačnosť, a cez deň by malo byť prevažne slnečno a teplo.

■ Na najteplejších miestach by mala teplota vzduchu dosiahnuť až hodnotu 30 °C. V noci a ráno sa ochladí, ale na túto ročnú dobu to stále budú priaznivé teplotné podmienky. Na prelome tohto a budúceho týždňa tlaková výš prechodne zoslabne, a tak sa na niektorých miestach môžu vyskytnúť prehánky, prípadne aj búrky. (rj)

Meteorologický prehľad za obdobie od 29. 8. do 4. 9. 2016

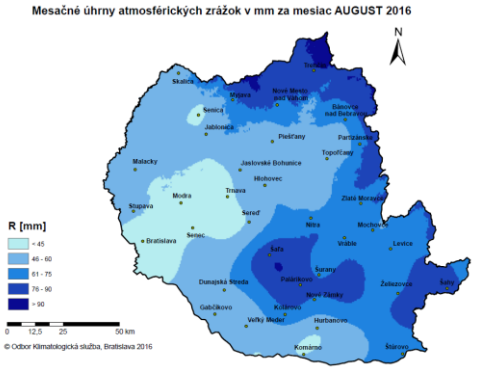
STANICA	TEPLOTA VZDUCHU (°C) PRIEMER	ODCH. OD NORM.	MAX. 2 m	MIN. 2 m	MIN. 5 cm	ZRÁŽKY ÚHRN mm	% NORM.	SLN. SVIT H
Bratislava, Koliba	21,4	4,3	30	13	8	8	61	70
Kuchyňa, letisko	19,6	3,3	30	7	3	17	127	68
Nitra, letisko	20,0	3,0	29	10	7	7	68	72
Hurbanovo	20,1	2,8	30	10	6	3	26	71
Žilina, letisko	17,9	2,7	27	7	5	17	88	61
Liesek	15,1	2,7	26	4	2	13	88	58
Sliač, letisko	17,9	2,7	28	9	5	10	73	63
Dudince	18,6	3,1	30	9	8	2	21	63
Lučenec, letisko	19,5	3,0	29	9	6	4	34	64
Poprad, letisko	15,5	2,5	28	4	1	47	357	63
Štrbské Pleso	17,6	2,7	30	7	2	3	17	70
Košice, letisko	19,8	3,7	29	9	4	1	8	69
Trebišov, Milhostov	19,6	3,0	31	10	6	1	12	73

Ex-post assessments/reports

- monthly agrometeorological reports since 1980s (since 2009 online in pdf form)
  - separately for the Western, Central and Eastern Slovakia
- content
  - agrometeorological characteristics (weather situations, air temperature, precipitation, soil temperature and humidity)
  - phenological characteristics (crops, fruit trees, forest phenology, zoophenology)
- beside text form also tables and the maps of monthly precipitation

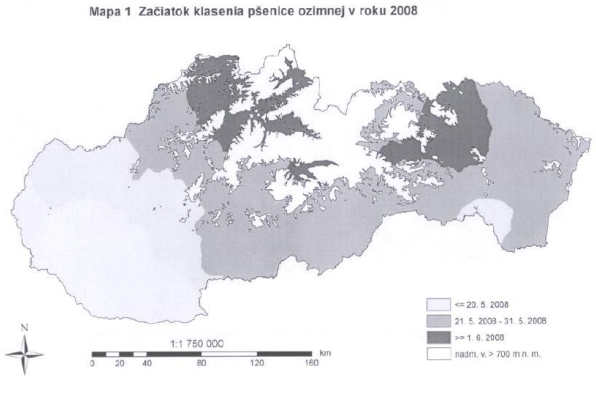
Klimatologický prehľad za mesiac august 2016

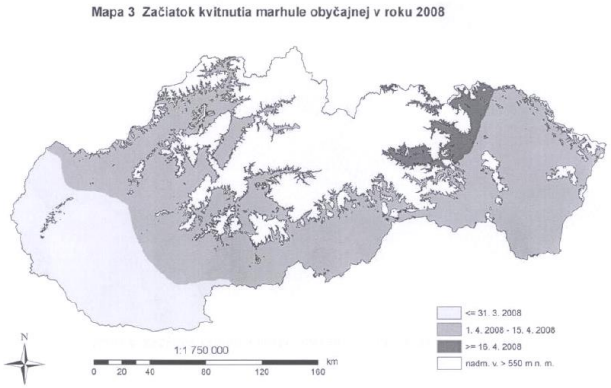
Stanica	N.v. [m]	Atmosferické zrážky					Teplota vzduchu						Slnečný svit [h]	Teplota pôdy				Suma od 1.4. tpr ≥ 0 [°C]
		Úhrn [mm]	DP [%]	N [%]	Počet dní so		Priemer [°C]	Odchýlka DP [°C]	Odchýlka N [°C]	Absolútna				5 cm		20 cm		
					1 - 4,9 mm	5 a viac mm				Max. [°C]	Min. [°C]	Príz.min. [°C]		Priemer [°C]	Min. [°C]	Priemer [°C]		
Bratislava, Koliba	287	35	51	51	1	4	19.9	1.0	0.9	31.1	9.4	6.1	295	22.2	17.6	21.6		2708
Bratislava, letisko	133	28	46	45	3	3	20.3	1.2	1.0	30.8	7.3	5.1	290	23.1	15.1	22.3		2800
Bratislava, Mlynská dolina	182	31	48	x	2	3	19.9	x	x	32.9	9.4	4.3	266	x	x	x		2715
Holíč	180	43	x	x	2	4	19.8	1.1	x	31.3	7.3	x	271	19.3	15.5	19.0		1913
Hurbanovo	115	35	67	60	2	4	19.8	0.4	0.3	31.9	6.3	1.9	299	22.1	15.9	22.0		2803
Jaslovské Bohunice	176	56	92	90	2	4	19.1	0.5	0.4	30.0	6.0	3.4	272	21.5	15.8	21.2		2617
Kráľová pri Senci	124	44	76	77	3	4	20.7	1.5	1.4	30.7	10.9	7.9	x	21.2	15.3	20.4		2609
Kuchyňa, Nový Dvor	206	62	91	95	0	5	19.3	0.9	0.9	31.5	6.1	1.9	277	21.3	15.9	21.5		2646
Mochovce	261	x	x	x	x	x	19.1	x	0.9	30.0	7.1	7.0	273	21.2	17.9	21.0		2638
Modra, Piesok	533	24	32	x	2	3	17.6	x	x	27.4	8.8	x	261	x	x	x		2387
Myjava	349	57	89	93	1	5	17.5	0.1	0.1	28.2	4.5	4.0	248	x	x	x		x
Nitra, Veľké Janíkovce	135	72	141	118	4	3	19.8	0.6	0.8	31.4	6.5	3.6	300	x	x	x		2764
Piešťany	163	54	79	83	4	3	18.8	0.4	0.4	30.0	7.1	3.8	281	x	x	x		2631
Podhájska	138	89	162	162	2	5	19.1	0.2	0.1	31.5	5.6	4.2	304	x	x	x		2696
Prievidza	260	123	166	164	2	6	18.8	1.1	0.8	30.3	5.2	1.8	267	21.0	16.7	20.6		2646
Topoľčany	180	42	68	66	1	3	19.7	0.8	0.7	31.4	6.5	5.0	x	20.7	16.2	20.6		2776
Žihárec	112	87	155	134	3	4	20.9	1.8	1.8	31.8	7.0	5.0	274	21.8	13.0	21.1		2907

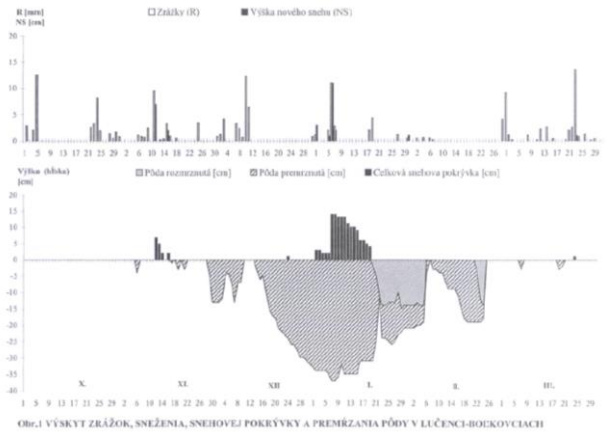


Ex-post assessments/reports

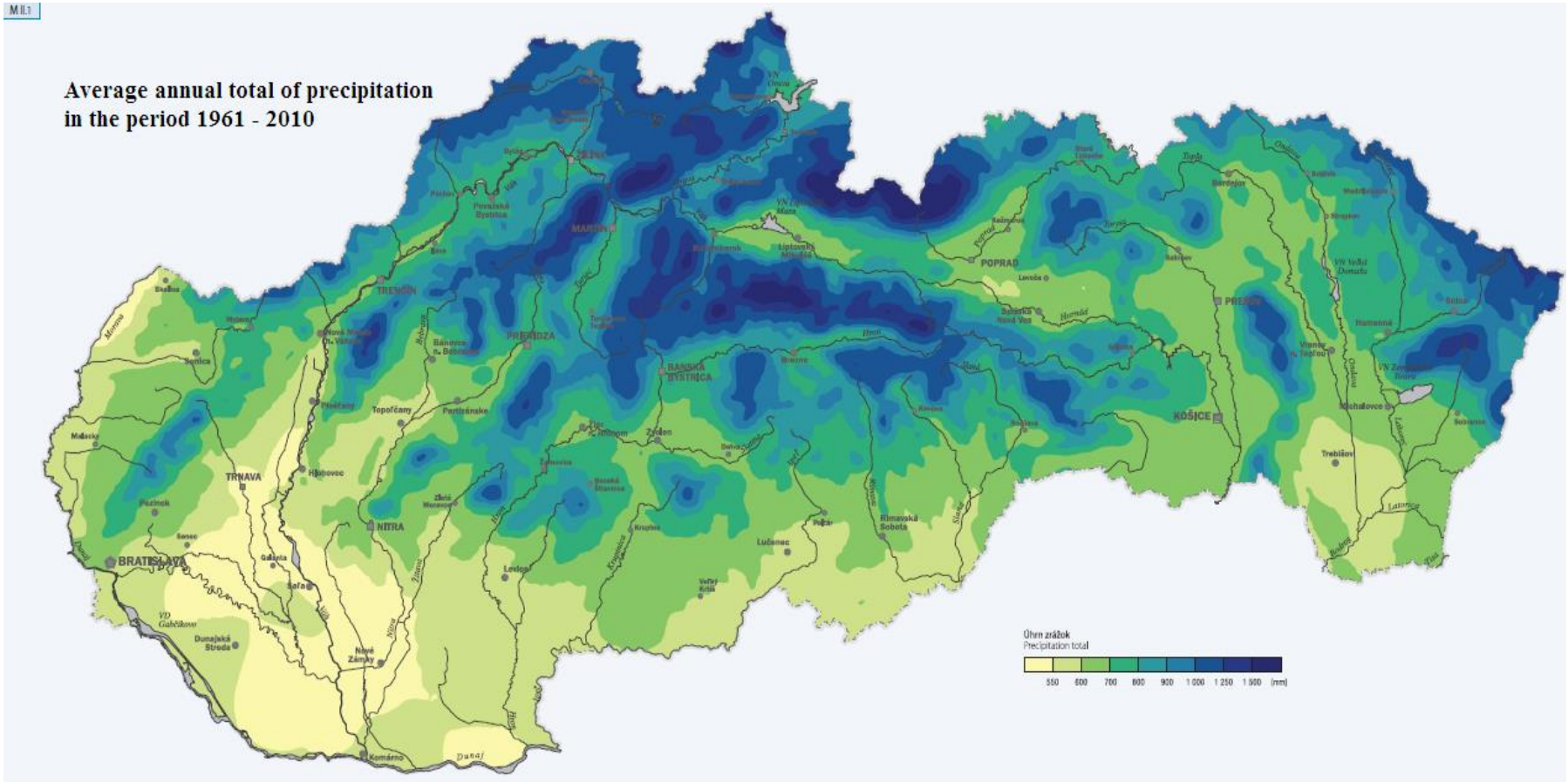
- annual agrometeorological and phenological reports
  - separately for the Western, Central and Eastern Slovakia
- content
  - agrometeorological characteristics
  - the wintering of crops as well as their phenophases in spring and summer
  - fruit trees and forest phenology
  - zoophenology
- beside text form also tables and the maps



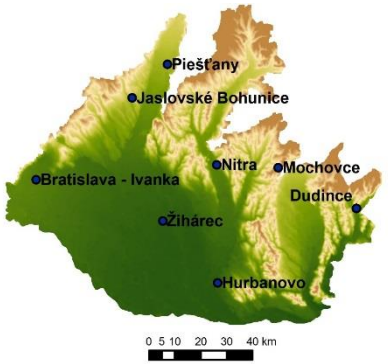




Operational services



Operational services



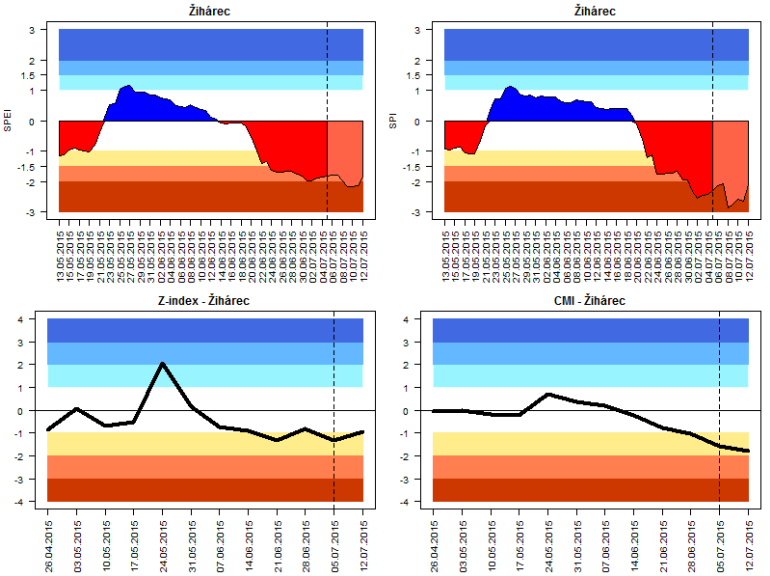
Drought monitoring

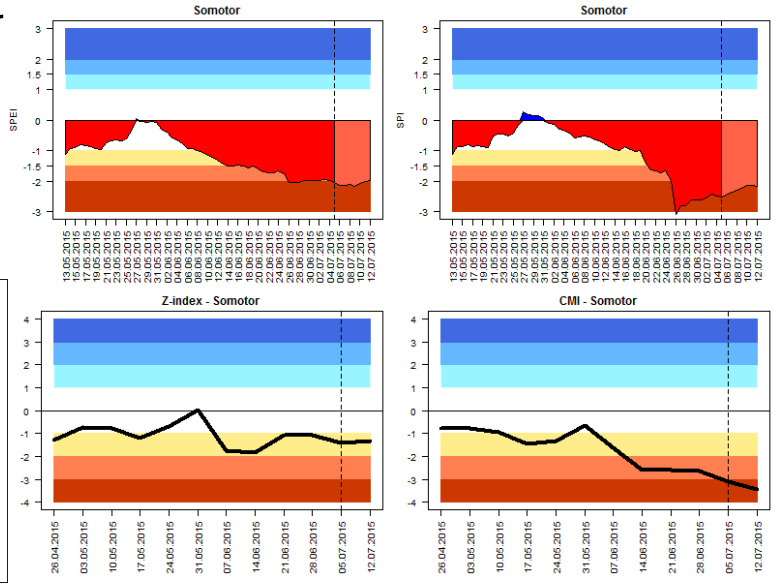
- testing version of monitoring in 2015
- 12 meteorological stations on 2 lowlands
- 4 drought indices: SPI, SPEI, CMI, Palmer Z-index
- SPI and SPEI in daily step with 30 accumulation period (30-days moving window)
- CMI and Palmer Z-index in weekly step
- reference period: 1961 – 2010, 1981 – 2010 respectively

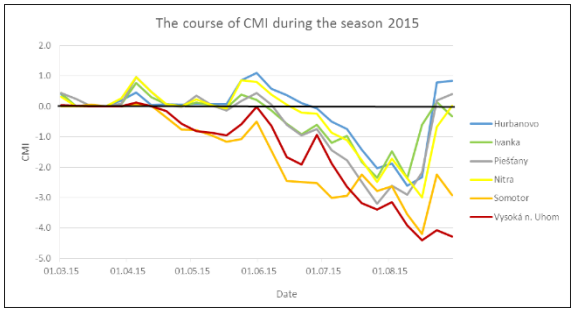
Operational services

Drought monitoring

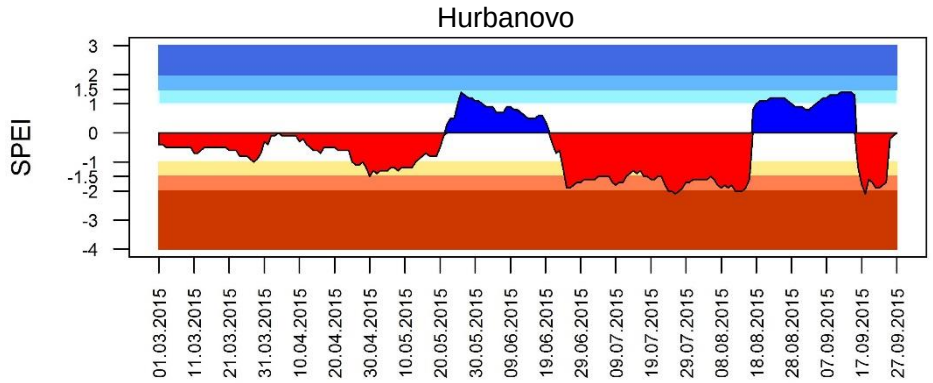
- updated weekly on Monday
- start: 1st March 2015
- end: 28th September 2015
- graphical form + briefly text assessment
  - the course of 4 indices during last 60 days
  - 7 day-forecast (ECMWF)
- feedback from farmers

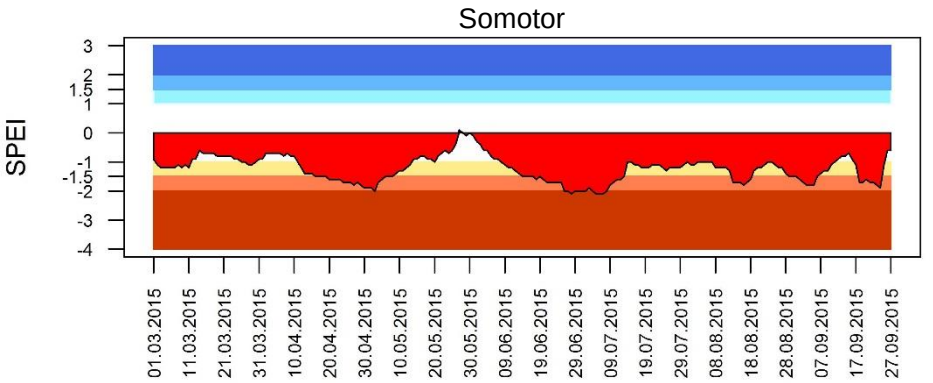


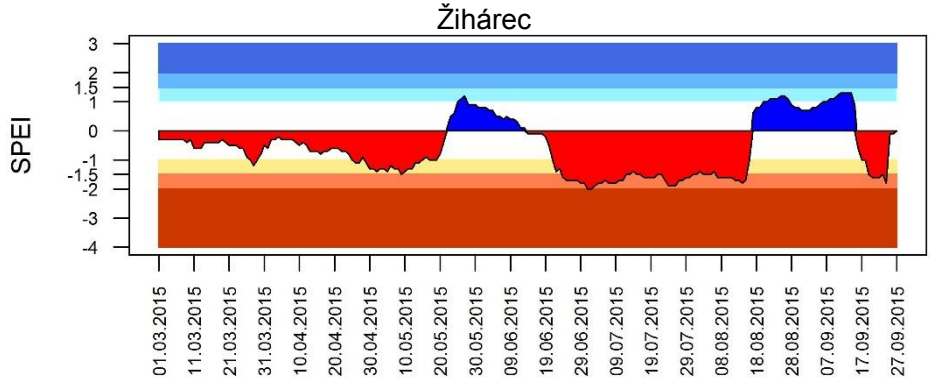


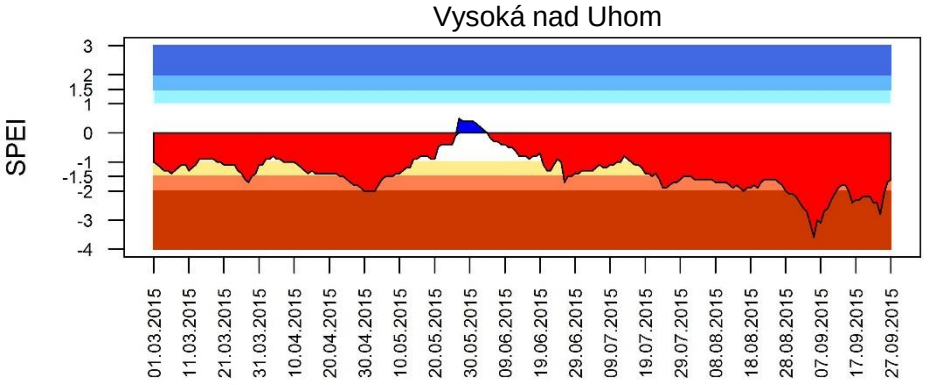


Operational services

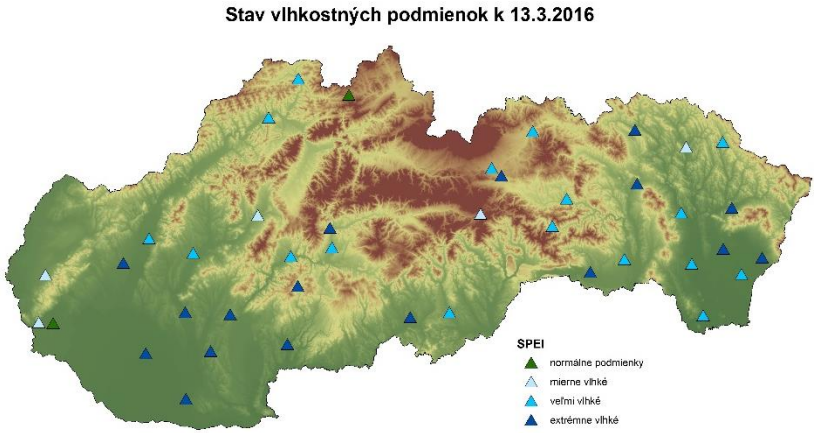






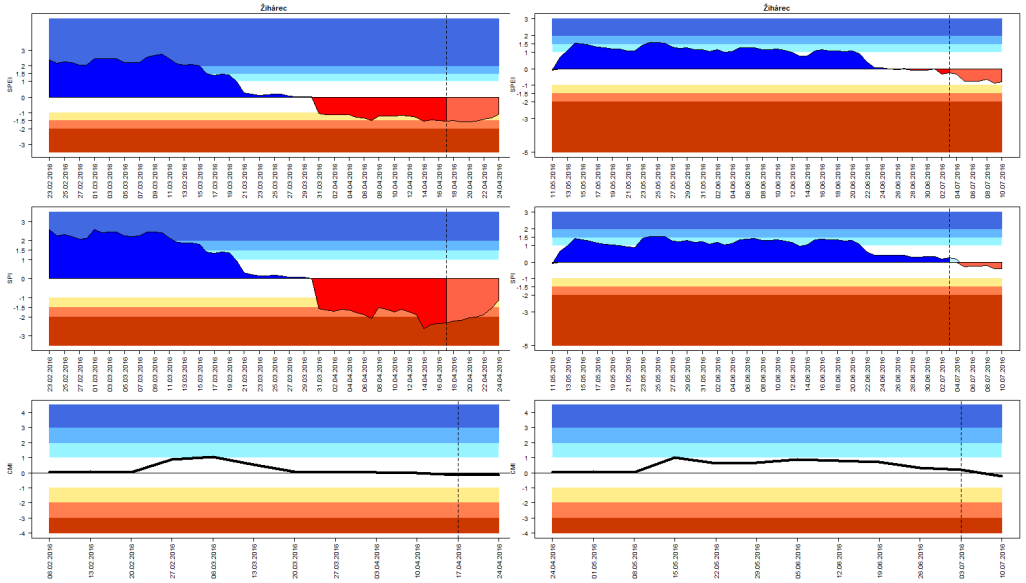


Operational services



Drought monitoring

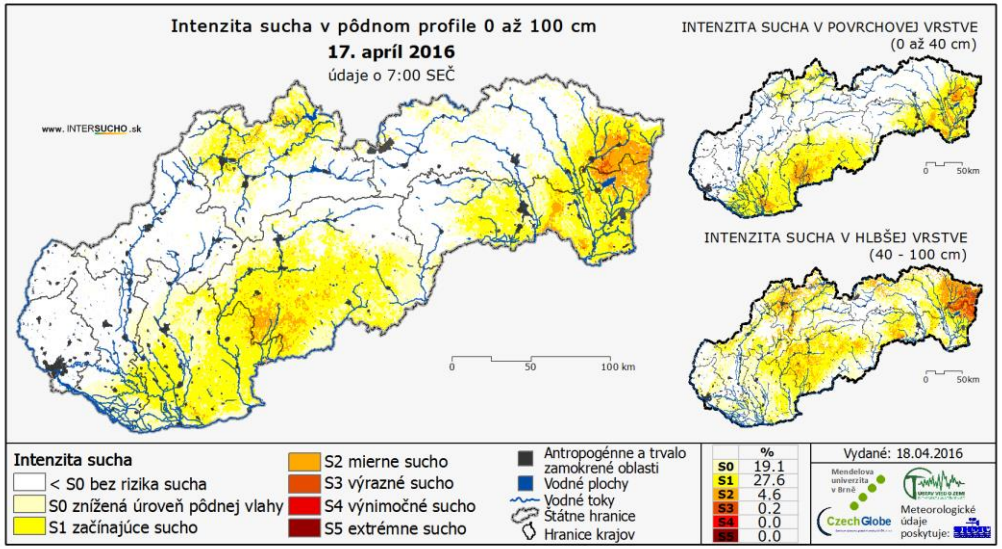
- full version of monitoring in 2016
- 44 meteorological stations in Slovakia
- 3 drought indices: SPI, SPEI, CMI
- reference period:
- 1981 – 2010
- start: 1st March 2016
- end: 2nd October 2016
- updated weekly on Monday
- http://www.shmu.sk/sk/?page=2161



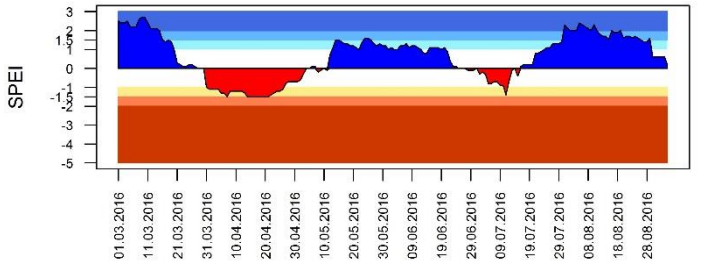
Operational services

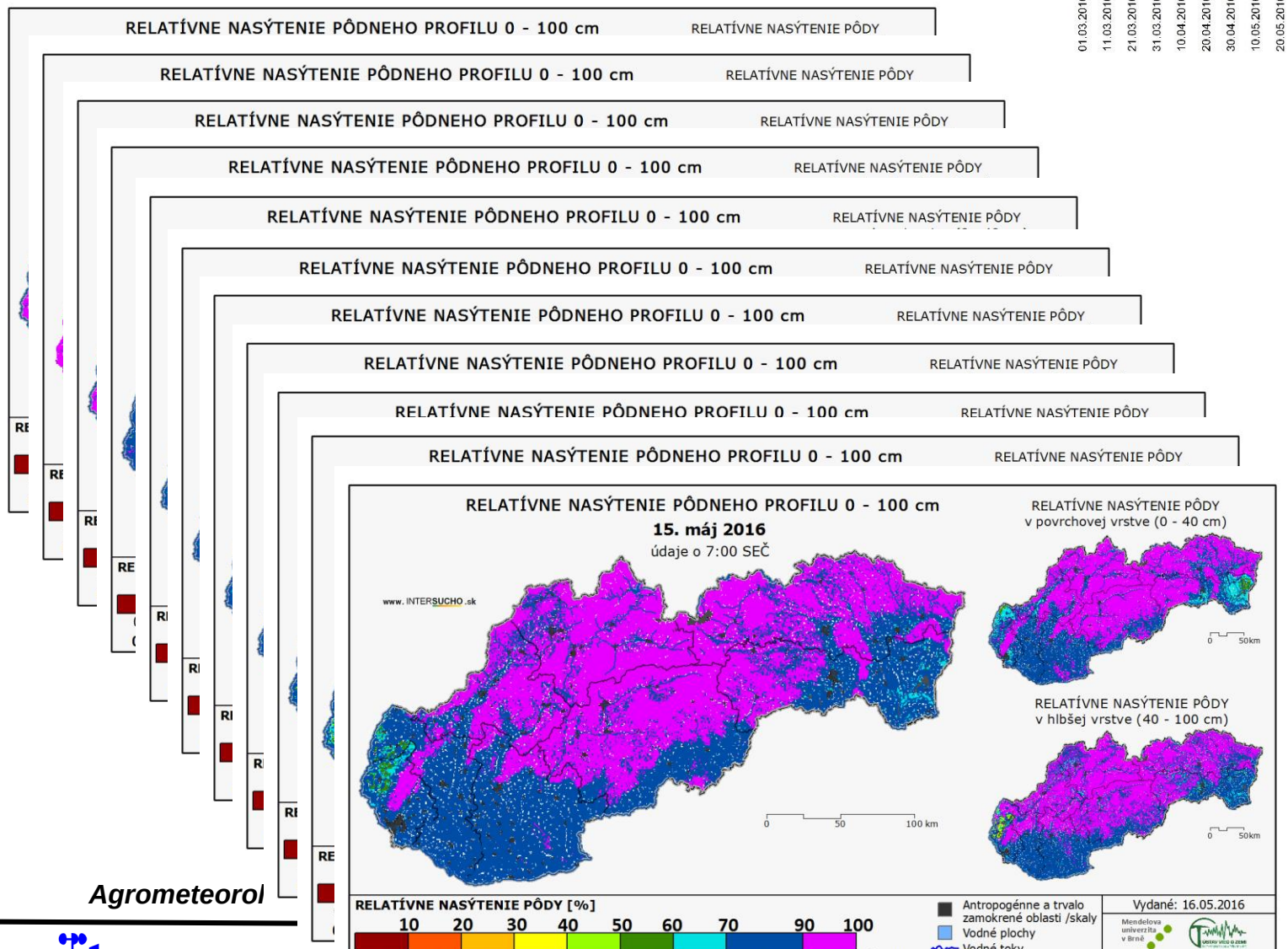
Drought monitoring within the project Intersucho

- focused on water content in soil and the condition of vegetation
- content:
  - soil drought intensity
  - soil humidity
  - absolute water content in soil
  - Enhanced Vegetation Index
- updated weekly on Monday
- since September 2015
- maps and text assessment
- http://www.intersucho.cz/sk/



Operational services





Agrometeorol *ana, Slovenia*

SHMÚ

Slovak Hy

Forecasting services

- in cooperation with **National Agriculture and Food Center – Soil Science and Conservation Research Institute**
- the estimation of crop yields
- SHMI provides:
  - daily air temperature and precipitation
  - weekly during growing period

Papers

- several papers assessing agrometeorological and phenological characteristics in the past (1970s – 1990s)
- newest:

  Labudová, L., Labuda, M., & Takáč, J. (2016). Comparison of SPI and SPEI applicability for drought impact assessment on crop production in the Danubian Lowland and the East Slovakian Lowland. **Theoretical and Applied Climatology**, 1–16. doi:10.1007/s00704-016-1870-2

Projects

current

- Intersucho

on-going

DRiDanube

- international project coordinated by Slovenian Environmental Agency
- focus: drought risk in the Danube region

2 national projects submitted within the call for projects of Slovak Research and Development Agency

Future plans

- **improvement of drought monitoring**
  - station based ⟹ spatial information with horizontal resolution 1 km
  - interpolation techniques ⟺ models (INCA, SURFEX)
  - **main challenges**
    - using models: long-term data (at least since 1981)
    - using interpolation: physical correctness according to number of stations due to complex terrain
  - **our aim**
    - to provide spatial information about precipitation/water balance deficit in high resolution
    - to update this information more often than once a week

Thank you for your attention!

Any comments, or questions?