

**CROATIAN ACADEMY OF MEDICAL SCIENCES**  
Committee for Health Tourism and Natural Remedies

**Goran Ivanišević**

**NATURAL  
HEALTH RESORTS  
IN CROATIA**

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**NATURAL HEALTH RESORTS IN CROATIA**

Dedicated to  
**Renata Novak (1919-1993)**  
Croatian Balneologist

**Goran Ivanišević**  
**NATURAL HEALTH RESORTS IN CROATIA**

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Zagreb, 2008.



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# PREFACE

In 1994 the *Committee for Health Tourism* of the *Croatian Academy of Medical Sciences* was founded. In 1999 the Committee changed its name to the *Committee for Health Tourism and Natural Remedies*. Between 2000 and 2007 the Committee organized eleven symposia which covered topics of natural remedies, marine remedies, balneologic remedies and health tourism.

The first *Glossary of Balneoclimatology and Natural Remedies in Croatia* was published in 2001; the second one, much revised and enlarged, in 2006.

The English edition *Natural Health Resorts in Croatia* is the first attempt to provide to the international medical and tourist community the relevant basic information on health resorts in Croatia, both historical and active, as well as the info on Croatian balneologists, balneologic publications, institutions and natural remedies.

It is my great pleasure to thank professors Stella Fatović-Ferenčić and Theodor Dürriigl for their review, my son Ivor Ivanišević for language review and graphic design, and printing office *Interprint* for printing this book.

Zagreb, June 2008.

**Author**





# INTRODUCTORY TABLES

Table 1. **Natural remedies** (Ivanišević, 2001)

<b>Climatic</b>	<b>Marine</b>	<b>Spa (balneologic)</b>
■ change of climatic region	■ climate	■ thermomineral water
■ climatic elements and factors	■ air purity	■ peloid
■ climatic procedures	■ sea water	■ naphtalane
■ air purity	■ algae	■ climate
■ solar radiation	■ plants	■ air purity
■ marine remedies	■ walking trails	■ plants
■ karstic caves	■ solar radiation	■ walking trails
■ salt mines	■ sand	■ solar radiation
	■ salt peloid	
	■ sea peloid (liman)	

Table 2. **Thermal comfort classification according to the TWH index**  
(Pleško, 1996)

<b>Thermal comfort</b>	<b>TWH index (kJ/kg)</b>	<b>Recommended clothes</b>
extraordinarily cold	< -30.0	polar clothes (multi-layered, water-resistant)
very cold	-30.0 - -5.1	winter suit and winter coat
cold	-5.0 - 15.0	suit and coat
fresh	15.1 - 30.0	suit and overcoat or wind coat
pleasant	30.1 - 50.0	suit
warm	50.1 - 65.0	long trousers, jersey or shirt
hot	65.1 - 80.0	tropical clothes (shorts and t-shirt)
very hot	80.1 - 110.0	as little clothes as possible
extraordinarily hot	> 110.0	no clothes at all

Table 3. **Classification of mineral and thermal waters** (Novak, 1968)

<b>Characteristic</b>	<b>Value</b>	<b>Name</b>
Total mineralisation	> 1 g per 1l of water	mineral
<b>Ions in traces</b>		
Fe	> 10 mg per 1l of water	iron
I	> 1 mg per 1l of water	iodine
As	> 0.7 mg per 1l of water	arsenic
F	> 2 mg per 1l of water	fluorine
<b>Gases</b>		
CO <sub>2</sub>	> 1 g per 1l of water	carbon dioxide
S, H <sub>2</sub> S	> 1 mg per 1l of water	sulfur
<b>Radioactive compounds</b>		
Rn	> 80 Bq per 1l of water	radon
Ra	> 10 <sup>-7</sup> mg per 1l of water	radium
<b>Temperature</b>		
	< 20 °C	cold
	20-34 °C	hypothermic
	34-38 °C	isothermic
	> 38 °C	hyperthermic
<b>Dominant ions</b>		
Cl (Na, Ca, Mg)	> 20 mval%	chloride (sodium, calcium, magnesium)
HCO <sub>3</sub> (Na, Ca, Mg)	> 20 mval%	hydrogen carbonate (sodium, calcium, magnesium)
CO <sub>3</sub>	> 20 mval%	carbonate (very rare)
SO <sub>4</sub> (Na, Ca, Mg, Fe, Al)	> 20 mval%	sulfate (sodium, calcium, magnesium, iron, aluminium)
Cl (Na)	> 240 mval%	salt

Table 4. **Classification of peloids** (Novak, 1981)

Genetic classification		Origin	Physical and chemical characteristics		
			Humidity %	Dry component	
				Inorganic %	Organic + evaporable %
Soil loose sediments	<b>Soils</b>	Aerobical breakdown in alkaline medium	<10-20 %	92->99 %	<1-8 %
	<b>Peloids</b>				
Underwater loose sediments	spring marine	Saprophytation in alkaline medium	10-50 %	96->99 %	<1-4 %
	liman		40-70 %	82-98 %	2-18 %
	bitumen		30-75 %	67-98 %	2-33 %
			70-90 %	54-88 %	12-46 %
	<b>Peats</b>	Humification			
	peat soils	in acidic medium	70-77 %	52-67 %	33-48 %
	peat		67-92 %	1-25 %	75-99 %



# GLOSSARY

## A

- **acratopagic waters** - healing waters not classified as mineral and/or thermal.
- **acratothermic springs** - springs with water temperature between 30.1 and 40.0 °C (according to V. Vouk).
- **acratothermic waters** - waters with spring temperature between 30.1 and 40.0 °C (according to V. Vouk).
- **active rest** - set of recreational and other activities during daily, weekly and yearly rest aimed to improve mental and physical health.
- **aerokinesitherapy** - the use of respiratory exercises and kinesitherapy in clean air.
- **aerosol therapy** - the use of aerosol in treatment of respiratory system, body cavities and damaged skin surface.
- **aerotherapy** - the use of clean air in treatment.
- **alkaline waters** - calcium or calcium magnesium waters.
- **algototherapy** - the use of algae and/or their preparations in treatment.
- **alkaline waters** - 1. sodium hydrogen carbonate waters. 2. waters with sodium (Na), potassium (K), calcium (Ca), magnesium (Mg), barium (Ba) and iron (Fe) cations, together with hydrogen carbonate ( $\text{HCO}_3$ ) and carbonate ( $\text{CO}_3$ ) anions.
- **alum waters** - aluminium sulfate waters.
- **Anina kupelj** - a bath in Daruvarske toplice.
- **Antunova kupelj** - a bath in Daruvarske toplice.
- **Antunovo vrelo** - a spring in Daruvarske toplice.
- **Apatovac** - a finding site of mineral, iodine (I), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ) - chloride (Cl), carbon dioxide ( $\text{CO}_2$ ), cold (11.3 °C) water in northwest part of Croatia, in Podravina-Bilogora region near Kalnik.
- **Apatovačka kiselica** - a mineral carbon dioxide water from Apatovac.
- **aromatherapy** - the use of aromatic substances and/or aromatic oils in treatment.

## B

- **Babina greda** - a thermomineral water finding site in Slavonia, 16 km northwest of Županja.
- **Babino polje** - a climatic and thalassotherapeutic health resort in Dalmatia, in the central part of the island of Mljet, 6 km southwest of Sobra port.
- **Bakar** - a climatic and thalassotherapeutic health resort in the northwest part of Kvarner bay, 15 km southeast of Rijeka.
- **balneoclimatologic service** - the service for control and finding, analysis, use and protection of finding sites and/or places of use of balneologic natural remedies: thermomineral waters, peloids, climate and naphthalane.
- **balneoclimatology** - the medical science that deals with climatology of finding sites and/or places of use of the balneologic climatic remedies.
- **Balneoklimatologija** - a quarterly journal published by Zavod za fizikalnu medicinu i rehabilitaciju in Zagreb, Demetrova 18 since 1997. Editor in chief: Radovan Čepelak.
- **balneologic health resort** s. **spa health resort**

- **balneologic service** - the service for control and finding, analysis, use and protection of thermomineral waters and peloids.
- **Balneološki laboratorij** - former laboratory for mineral waters and peloids in Zavod za fizikalnu medicinu i rehabilitaciju of the Faculty of Medicine of the University of Zagreb, Demetrova 18.
- **Balneološko-klimatološki institut s. Zavod za fizikalnu medicinu i rehabilitaciju**
- **balneotherapy** - the medical use of balneologic natural remedies.
- **Baška** - a climatic and thalassotherapeutic health resort in Kvarner bay, on the southeast coast of the island of Krk.
- **Baška voda** - a climatic and thalassotherapeutic health resort in Dalmatia, on Makarska coast, 9.5 km northwest of Makarska.
- **Baške Oštarije** - a mountain climatic health resort (924 m) in west part of central Lika, 12 km east of Karlobag.
- **bath** - small fenced area for medical use of sea, thermomineral water, peloid or naphthalane.
- **bathing place** - arranged place on seaside, river or lake for medical bathing.
- **bioclimatic prospect** - bioclimatic survey of (health) resort or region.
- **bioclimatology** - the science that deals with effect of climate on living organisms.
- **Biograd** - a climatic and thalassotherapeutic health resort in northern Dalmatia, 28 km south of Zadar. Health resort since 1976 with Special orthopedic hospital.
- **Biokovka s. Makarska**
- **biometeorology** - the science that deals with the effect of meteorological elements and remedies on living organisms.
- **Bistrina** - a peloid finding site in south Dalmatia, near Dubrovnik.
- **bitter waters** - magnesium sulfate waters.
- **bitumen peloids** - underwater loose sediments formed by saprofication (putrefaction) in alkaline medium. They contain 70-90% of water, 20-46% of organic, and 54-80% of inorganic matter.
- **Bizovac** - a finding site of several springs of mineral, iodine (I), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ) - chloride (Cl), hyperthermic (84.0 °C) water in Slavonia, 8 km south of Valpovo. Health resort since 1974 with Outpatient clinic for physical medicine and rehabilitation.
- **Bizovačke toplice s. Bizovac**
- **Blace** - a marine peloid finding site in the mouth of Neretva river, 13 km southeast of Ploče.
- **Blato** - 1. A marine peloid finding site in Dalmatia, on the island of Pag. 2. s. **Zagreb - Blato**
- **Blizanac** - a mineral water finding site in Dalmatia, in Kruševo near Obrovac.
- **boiling springs s. hyperthermic springs**
- **Bok** - a thermal water finding site in Posavina, 7 km northeast of Sisak.
- **Bokšić 1** - a thermomineral water finding site in Slavonia, near Našice.
- **Bol** - a climatic and thalassotherapeutic health resort in Dalmatia, on the island of Brač.
- **Brač** - an island in Dalmatia suitable for climatotherapy and thalassotherapy.
- **Brela** - a climatic and thalassotherapeutic health resort in central Dalmatia, on Makarska coast, 15 km northwest of Makarska.
- **Brestovac** - a mountain climatic health resort (846 m) on southern part of Medvednica. The health resort for tuberculosis and pulmonary diseases from 1909 until 1967.
- **Brijuni** - a group of 14 climatic and thalassotherapeutic islands and a national park in western Istria, 6 km northwest of Pula.
- **Brna** - a thalassotherapeutic place in Dalmatia, in southern part of the island of Korčula near Istruga, 4 km southwest of Smokvica.
- **Brod Moravice** - a mountain climatic health resort (604 m) in northern part of Gorski Kotar, 23 km of Delnice.
- **Brod na Kupa** - a climatic health resort (222 m) in northern part of Gorski Kotar,

12 km north of Delnice.

- **Brubno** - a mineral water finding site in Banovina.
- **Bučička Slatina** - a mineral carbon dioxide water finding site in Banovina.

## C

- **Caprag** - a finding site of mineral, iodine (I), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ) - chloride (Cl), cold (14 °C) water in Posavina, near Sisak.
- **carbon dioxide waters** - mineral waters with carbon dioxide ( $\text{CO}_2$ ) >1g/l.
- **Cattanijevo vrelo** - a spring of sulfur water in Splitske toplice.
- **Cavat** - a climatic and thalassotherapeutic health resort in southern Dalmatia, in southern part of Župa bay, 20 km southwest of Dubrovnik.
- **ch thermae s. chlorophytic thermae**
- **change of climatic region** - transition to the place of different climate for medical benefit.
- **chlorophytic thermae** - hliarothermic and hypothermic springs characterized by green algae of genera Rhizoclonium, Stigeoclonium, Spirogyra and Chara.
- **climatic factors** - constant astronomical or geodesic values that influence climatic elements. The most important ones are: noon Sun height, distance from sea, altitude, shape and composition of Earth surface.
- **climatic health resort** - health institution that uses climatic natural remedies and procedures of physical medicine and rehabilitation in prevention, specialist consultative and hospital rehabilitation.
- **climatic remedies** - natural remedies

## Č

- **Čepelak, Radovan** (1944) - geologist, balneologist. Has worked in Zavod za fizikal-

- **Budak, Jozo** (1902-1966) - professor, specialist physiatrist, balneologist.
- **Bujavica** - a finding site of mineral, sodium (Na) - chloride (Cl), cold (12.8 °C) water in western part of Slavonia, near Novska.

characteristic for some region: change of climatic region, climatic elements, climatic factors, climatic remedies and treatments (aerotherapy, heliotherapy and thalassotherapy).

- **climatotherapy** - the medical use of climatic natural remedies.
- **cold springs** - springs with water temperature <18.0 °C (according to V. Vouk).
- **cold waters** - waters with spring temperature <20.0 °C.
- **Cres** - 1. The island suitable for climatotherapy and thalassotherapy. 2. Climatic and thalassotherapeutic health resort on southwest part of the island of Cres.
- **Crikvenica** - a climatic and thalassotherapeutic health resort in Vinodol region in Hrvatsko primorje, 37 km southeast of Rijeka. Health resort since 1895, with Special hospital Thalassotherapia for diseases of upper respiratory tract and rheumatic diseases.
- **Crna Rijeka** - a peat finding site in Banovina, near Topusko.
- **cyanophitic thermae** - thermal springs characterized with blue-green algae (*Cyanoficeae*) of genera Mastigocladus, Phormidium and Oscillatoria.
- **Czukur, Mirko** (1927-2000) - primarius, specialist neuropsychiatrist, balneologist. Director of Health resort and Hospital in Lipik from 1965 until 1982).

nu medicinu i rehabilitaciju Medicinskoga fakulteta Sveučilišta u Zagrebu, Demetro-



va 18 since 1963. Done many balneologic analyses of thermomineral waters and peloids, together with expertises on their use.

## D

■ **d thermae s. diatomeic thermae**

■ **Dadino vrelo** - a spring in Tuheljske Toplice.

■ **Daruvar** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hyperthermic (47 °C) water and mineral peloid in western Slavonia, 21 km north of Pakrac. Health resort since Roman times, revived in 1765, with Special hospital for medical rehabilitation Daruvarske toplice.

■ **Daruvarske toplice** - finding site of several thermal water springs and application place of natural remedies in Daruvar.

■ **Delnice** - a mountain climatic health resort (696 m) in Gorski kotar.

■ **destination s. tourist destination**

■ **diving** - descending in water by keeping breath or with respiratory apparatus.

■ **Donji Lapac** - a mountain climatic health resort (582 m) in southeast part of Lika, 27 km east of Udbina.

■ **Dražkovec** - a finding site of mineral, bromine (Br), iodine (I), sodium (Na) - chloride (Cl), hyperthermic (67 °C) salt water in Međimurje, 5 km east of Prelog, 17 km southeast of Čakovec.

## Đ

■ **Đakovačka Breznica** - a finding site of several springs of sulfur (S), calcium (Ca) - magnesium (Mg) - hydrogen carbonate

## E

■ **ecotourism** - travel and visit to regions with preserved or untouched nature, unpolluted and preserved environment.

■ **Čret** - a peat finding site in Banovina, near Topusko.

■ **Čučerje s. Zagreb - Čučerje**

■ **Dravka 1** - a thermomineral water finding site in Podravina, near Đurđevac.

■ **Drenovec** - a finding site of sodium (Na) - calcium (Ca) - hydrogen carbonate ( $\text{HCO}_3$ ), weak carbon dioxide ( $\text{CO}_2$ ) water in Hrvatsko zagorje, near Varaždinske Toplice.

■ **drinking of mineral water** - medically dosed drinking of mineral water.

■ **drinking water** - water suitable for drinking.

■ **Dubrava s. Zagreb - Dubrava**

■ **Dubravka** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), cold (12 °C) water near Dubrovnik.

■ **Dubrovnik** - a climatic and thalassotherapeutic health resort since 1952 in southern Dalmatia.

■ **Dudarove kupke** - a finding site of fluorine (F), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ), cold (14 °C) water in Slavonia, near Županja.

■ **Duga uvala** - a tourist place with thalassotherapeutic remedies in southeast part of Istria, in Vinjole bay, 25 km southeast of Pula.

( $\text{HCO}_3$ ), cold (16 °C) water and one thermal spring in Slavonia, in northern part of Dilj, 22 km west of Đakovo.

■ **environmental ethics** - ethical rules for preservation and improvement of environment.

- **Ernestinovo** - a thermomineral water finding site in eastern Slavonia, 14 km south of Osijek.

## F

- **f thermae s. iron thermae**
- **fango s. peloid**
- **Filipan - 1 s. Vučkovečke toplice**
- **fossil waters** - vadous waters of restricted spring flow duration.
- **Franjevačko vrelo** (*Izvor svetoga Frane*) - a sulfur spring in Splitske toplice.
- **Franković, Vladimir** (1898-1951) - physician. First director of Balneološko-klimatološki institut in Zagreb, Demetrova 18.

## G

- **general hospital** - health institution which provides diagnostics, treatment, rehabilitation, nursing, stay and alimentation together with specialist consultative service and inpatient facilities for internal medicine, surgery, pediatrics, gynecology and obstetrics.
- **gitja** - bitumen peloid formed by metasap- rofication (incomplete putrefaction) in shallow water layer with restricted oxygen, in which the matter is pulled down by oxidative, and then by reductive processes. Besides organ matter, it contains from 10% to more than 40% of inorganic matter.
- **Glavice** - a finding site of mineral, calcium (Ca) - sulfate ( $\text{SO}_4$ ), cold (13.7 °C) water in Dalmatia, in Cetinska krajina, near Sinj.
- **Glavnica Donja** - a finding site of mineral, sulfur (S), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ) cold water near Sesvete.
- **Glavno vrelo** - a thermal spring in Stubičke Toplice.
- **Glogovnica** - a healing water finding site in northwestern part of Croatia, in Podravina-Bilogora region, 11 km north of Križevci.

- **euthermal springs** - springs with water temperature between 30.1 and 40.0 °C (according to V. Vouk).

- **fresh water peloids** - peloids formed in slow rivers or lakes by sedimentation of minerals from its banks.
- **Fužine** - a mountain climatic health resort (732 m) and application place of mineral, iron (Fe), calcium (Ca) - hydrogen carbonate ( $\text{HCO}_3$ ), cold (12.8 °C) water in central part of Gorski kotar.

- **Glogovničke toplice s. Glogovnica**
- **goal-oriented active rest** - set of diagnostic, therapeutic, recreational and other activities in health institutions and/or health tourist objects aimed to improve health and prevent diseases.
- **Godišnjak Balneološko-klimatološkog instituta NR Hrvatske** - published in 1952, edited by Branko Haramustek, Stanko Miholić and Leo Trauner. Contains seven articles by four authors, and descriptions of 29 finding sites of mineral waters in Croatia.
- **Gornja Bistra** - a finding site of mineral, sulfur water 20 km north of Zagreb with Special hospital for chronic child diseases.
- **Gorski kotar** - a region between Poku- plje and Kvarner bay with many clima- totherapy places.
- **Gotalovec** - a finding site of oligominer- al, calcium (Ca) - magnesium (Mg) - hy- drogen carbonate ( $\text{HCO}_3$ ), hypothermic (26 °C) water in Hrvatsko zagorje, 13 km northeast of Zlatar.
- **Govedari** - a climatic and thalassothera- peutic health resort in the northwest part of the island of Mljet.

- **Gradac** - a climatic and thalassotherapeutic health resort in Dalmatia, on Ma-

karska coast, 13 km west of Ploče.

- **gypsum waters** - calcium sulfate waters.

## H

- **Handžova v. Radoboj**

■ **Haramustek, Branimir** (1904-1987) - primarius, specialist physiatrist, balneologist. Director of health resort in Stubičke Toplice from 1959 until 1973.

■ **Harina Zlaka** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), radioactive, hypothermic ( $33.5\text{ }^\circ\text{C}$ ) water in Hrvatsko zagorje, near Kumrovec.

■ **healing gas** - natural gas for medical use.

■ **health resort** - 1. Place which satisfies sanatorium conditions. 2. Health institution which uses natural remedies (climate, thermomineral water, peloid, naphthalan, sea water, sand etc.) and procedures of physical medicine and rehabilitation in prevention, specialist consultative and hospital rehabilitation.

■ **health services in health tourism** - set of medical services for preservation and improvement of health and the quality of life.

■ **health tourism** - medically controlled use of natural remedies and/or procedures of physical medicine and rehabilitation in preservation and improvement of health, quality of life improvement and in prevention of diseases.

■ **health tourism accommodation** - tourist object (health tourism hotel, health tourism camp, health tourism settlement) where, besides accommodation and alimentation, guest get special health services.

■ **health tourism destination** - place and/or region suitable for health and medicinal tourism.

■ **health tourism function** - non-economic function of tourism which directly influences health improvement of individual or his environment.

■ **heliotherapy** - medical use of solar rays.

■ **high peat** - peat containing 86-92% water, 95-99% organic matter, and 1-5% inorganic matter.

■ **hippotherapy** - special kind of kinesiotherapy on trained non-saddled horses.

■ **Hladno vrelo** - a spring in Istarske Toplice.

■ **hliarothermic springs** - springs with water temperature between  $18.1$  and  $30.0\text{ }^\circ\text{C}$  (according to V. Vouk).

■ **homeothermic waters** - waters with spring temperature between  $34.1$  and  $38.0\text{ }^\circ\text{C}$ .

■ **hot springs** s. **acratothermic waters**

■ **Hrvatsko društvo za balneoklimatologiju i prirodne ljekovite činitelje** - Croatian association for balneoclimatology and natural remedies. Founded in 2000 within the Croatian Medical Association. President: Goran Ivanišević, vice president: Ante Luetić, secretary: Radovan Čepelak.

■ **human bioclimatology** - the science that deals with the effects of climate on human body.

■ **Hvar** - 1. An island in central Dalmatia suitable for climatotherapy and thalassotherapy. 2. A climatic and thalassotherapeutic health resort on southwestern part of the island of Hvar. Health resort since 1868 (1889).

■ **hydrotherapy** - the medical use of water.

■ **hyperthermic springs** - the waters with spring temperature between  $60.1$  and  $80.0\text{ }^\circ\text{C}$  (according to V. Vouk).

■ **hyperthermic waters** - the waters with spring temperature  $>38.1\text{ }^\circ\text{C}$ .

■ **hypertonic mineral waters** - mineral waters with total molar concentration  $>300\text{ mmol/l}$ .

■ **hypothermic springs** s. **cold springs**

- **hypothermic waters** - the waters with spring temperature between 20.1 and 34.0 °C.

## I

- **Ičići** - a climatic and thalassotherapeutic health resort on the eastern coast of Istria, 7 km south of Opatija.
- **Ika** - a climatic and thalassotherapeutic health resort on the eastern coast of Istria, 9 km south of Opatija.
- **inorganic peloid compounds** - peloid compounds formed in soil or in sediments brought by rivers and rainfall. They make a larger portion of mineral peloids than of peats. They are classified according to particle size: sand (particles >0.02 mm, insoluble in hydrochloric acid) and ash (particles <0.02 mm, soluble in hydrochloric acid).
- **insolation** - the duration of direct solar irradiation (in hours).
- **International Society of Medical Hydrology and Climatology** - founded in 1921, brings together national societies for medical hydrology and climatology. Organized 36 congresses (1921-2008). President: Tamás Bender (Hungary).
- **iron thermae** - thermal springs with predominant iron bacteria (Leptothrix, Chlamydothrix, Crenothrix, Gallionell, Sphaerotilus, Siderobacter, Siderocapsa) and Cyanoficeae.
- **ISMH s. International Society of Medical Hydrology and Climatology**
- **isotonic mineral waters** - mineral waters

## J

- **Jablanac** - a climatic and thalassotherapeutic health resort in Kvarner bay, at the coast of Velebit canal, opposite to the island of Rab, 28 km northwest of Karlobag.
- **Jadrtovac s. Morinj**

- **hypotonic mineral waters** - mineral waters with total molar concentration <300 mmol/l.

with total molar concentration around 300 mmol/l.

- **Istarske Toplice** - a finding site of several springs of mineral, sulfur (S), sodium (Na) - calcium (Ca) - chloride (Cl), radon (Rn), isothermic (36 °C) water, and mineral peloid in central Istria, 11 km southwest of Buzet. Health resort since Roman times, revived in 1858, currently health resort.
- **Istruga** - a marine peloid finding site near Brna on the island of Korčula.
- **Ivanić Grad** - a finding site of two springs (wells) of mineral, fluorine (F), iodine (I), sodium (Na) - chloride (Cl), hypertermic (60.0 °C) water, and naphthalene in Moslavina, 39 km southeast of Zagreb. Health resort since 1989, with Special hospital for medical rehabilitation "Naftalan".
- **Ivanišević, Goran** (1948) - primarius, specialist for physical medicine and rehabilitation, balneologist. President of Odbor za zdravstveni turizam i prirodne ljekovite činitelje.
- **Ivanova kupelj** - a bath in Daruvarske toplice.
- **Ivanovo vrelo** - a mineral water spring in Daruvar.
- **Ivino vrelo** - a mineral water spring in Jamnica.
- **Izvor u perivoju** - a thermomineral water spring in Varaždinske Toplice.

- **Jagunićeve toplice s. Tuheljske Toplice**
- **Jakovljeva kupelj** - a bath in Krapinske Toplice.
- **Jakša, Ana** (1896-1988) - specialist pediatrician, thalassotherapist. Director of

Dječja bolnica (sanatorium) in Veli Lošinj from 1946 until 1960.

- **Jamička kiselica** - a finding site, Iva and Jana spring, of mineral, calcium (Ca) - hydrogen carbonate ( $\text{HCO}_3$ ), carbon dioxide ( $\text{CO}_2$ ), cold (15 °C) water in Pokuplje, 4 km south of Pissarovina. The water is used as a table drinking water.
- **Jamnica s. Jamnička kiselica**
- **Janino vrelo** - a mineral water spring in Jamnica.
- **Jelsa** - a climatic and thalassotherapeutic health resort on the northern coast of the island of Hvar.
- **Jesenice** - a climatic and thalassotherapeutic health resort in Dalmatia, at

## K

- **Kalac** - a finding site of sodium (Na) - calcium (Ca) - magnesium (Mg) - chloride (Cl) - hydrogen carbonate ( $\text{HCO}_3$ ) - sulfate ( $\text{SO}_4$ ), cold (16 °C) water on the island of Korčula, near Vela Luka.
- **Kale** - a finding site of marine peloid on the island of Korčula.
- **Kalnička kiselica s. Apatovačka kiselica**
- **Kalos** - a health resort from 1972 until 1978 and a hospital for medical rehabilitation in Vela Luka with the use of marine natural remedies and peloid.
- **Kamena Gorica** - a finding site of several springs of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (23 °C) water in Hrvatsko zagorje, near Mađarevo.
- **Kamenska kiselica** - a mineral water from Kamensko.
- **Kamensko** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ) - sulfate ( $\text{SO}_4$ ) cold water in Pokuplje, 5 km southeast of Karlovac.
- **Kampor** - a climatic and thalassotherapeutic health resort and marine peloid finding site on northwest part of the island of Rab.

the coast of Poljice, 8 km northwest of Omiš.

- **Jezerčica** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hyperthermic (38.6 °C) water in Hrvatsko zagorje, near Donja Stubica. Wellness center.
- **Josipova kupelj** - a bath in Varaždinske Toplice.
- **Jurdana, Stanko** (1924) - primarius, specialist for otorhinolaryngology, balneoclimatologist. Director of Thalassotherapia in Crikvenica from 1960 until 1967.
- **juvenile waters** - volcanic waters of constant composition and temperature.
- **Južno vrelo** - a spring in Velika.

- **Kapela** - a healing water finding site in Podravina-Bilogora region, near Bjelovar.
- **Karin** - a climatic and thalassotherapeutic health resort in Dalmatia, south of Obrovac.
- **Karinsko more** - a marine peloid finding site south of Obrovac.
- **Karlobag** - a climatic and thalassotherapeutic health resort in Hrvatsko primorje in Velebit canal, opposite to the island of Pag, 58 km southeast of Senj.
- **Karlovac 1** - a thermomineral water finding site in Karlovac.
- **Karlovac 2** - a thermomineral water finding site in Karlovac.
- **Kaštel Lukšić** - a climatic and thalassotherapeutic health resort in Dalmatia, in Kaštela bay.
- **Kaštel Novi** - a climatic and thalassotherapeutic health resort in Dalmatia, in Kaštela bay.
- **Kaštel Štafilic** - a climatic and thalassotherapeutic health resort in Dalmatia, in Kaštela bay.
- **Kaštel Stari** - a climatic and thalassotherapeutic health resort in Dalmatia, in Kaštela bay.

- **Katalena** - a finding site of mineral, iodine (I), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ) - chloride (Cl), hypothermic (30.5 °C) water in Podravina, near Ludbreg.
- **Klasnić** - a mineral water finding site in Banovina, near Glina.
- **Klenovnik** - a climatic health resort (253 m) in Hrvatsko zagorje, 9 km northwest of Ivanec with Hospital for pulmonary diseases and tuberculosis.
- **Klimatske promjene i njihov utjecaj na zdravlje** - a collection of 9 papers written by 21 authors edited by Berislav Skupnjak, Branimir Čvorišćec and Goran Ivanišević. Proceedings of symposium of Croatian society for health ecology of Croatian Medical Association, held on 24 May 2001 in Zagreb, published by the Croatian Academy of Medical Sciences in 2002.
- **Klimno** - a climatic and thalassotherapeutic health resort and the application place of marine peloid on the island of Krk in southern coast of Soline bay, 10 km of Omišalj.
- **Klokun** - a health salt spring in Dalmatia, in Podgora.
- **Kneipp health resort** - a natural health resort with the use of Kneipp method treatment.
- **Kneipp sanatorium s. Kneipp health resort**
- **Koločep** - a climatic and thalassotherapy island in south Dalmatia, 7 km northwest of Dubrovnik.
- **Komiža** - a climatic and thalassotherapeutic health resort in Dalmatia, on the bottom of Hum, on western coast of the island of Vis.
- **Konstantinova kupelj** - a sulfur bath in Varaždinske Toplice.
- **Korčula** - 1. An island suitable for climatotherapy and thalassotherapy. 2. A climatic and thalassotherapeutic health resort on the island of Korčula.
- **Košćevac** - a peloid finding site in Hrvatsko zagorje, near Varaždinske Toplice.
- **Kraljevica** - a climatic and thalassotherapeutic health resort in Hrvatsko primorje, in Vinodol canal, at the entrance in Bakar bay, 20 km southeast of Rijeka. Health resort since 1924 with orthopedic hospital.
- **Krapinske Toplice** - a finding site of several springs of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hyperthermic (41 °C) water in Hrvatsko zagorje, 17 km southwest of Krapina, 46 km northwest of Zagreb. Health place since Roman times, revived in 1779, with Special Hospital for Medical Rehabilitation.
- **Kreča Ves** - a finding site of sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ), hyperthermic (49 °C) water in Prigorje, near Sv. Ivan Zelina.
- **Krilo** - a climatic and thalassotherapeutic health resort in Dalmatia, between Split and Omiš.
- **Križevčanka 1** - a finding site of mineral, sodium (Na) - calcium (Ca) - hydrogen carbonate ( $\text{HCO}_3$ ) - sulfate ( $\text{SO}_4$ ), hyperthermic (65 °C) water in Križevci.
- **Križevci** - a thermomineral water finding site in northwest of Croatia, in Podravina-Bilogora region.
- **Krk** - 1. The island suitable for climatotherapy and thalassotherapy. 2. Climatic and thalassotherapeutic health resort on southwest part of the island of Krk.
- **Kruševo** (near Obrovac) s. **Blizanac**
- **Kukunjevac** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), cold (13 °C) water, near Lipik.
- **Kumrovec 1** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (around 20 °C) water in Hrvatsko zagorje, near Kumrovec.
- **Kupališno vrelo** - a spring in Splitske toplice.
- **Kupari** - a climatic and thalassotherapeutic health resort in southern Dalmatia, on western coast of Župa bay, 8 km south-



east of Dubrovnik.

- **Kutnjak 1** - a thermomineral water find-

## L

- **Lasinja s. Lasinjska kiselica**

- **Lasinjska kiselica** - a finding site of mineral, calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ) - sulfate ( $\text{SO}_4$ ), carbon dioxide ( $\text{CO}_2$ ), cold (13 °C) water in Banovina.

- **Lešće** - a finding site of several springs of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ) - sulfate ( $\text{SO}_4$ ), isothermic (34 °C) water in Gorski kotar, 6 km west of Generalski Stol.

- **Liječenje vodom: pristupi i paradoksi** - a collection of 15 papers written by 18 authors edited by Stella Fatović-Ferenčić and Goran Ivanišević. Proceedings of the symposium organized by the Croatian Academy of Sciences and Arts and Croatian Medical Association, held on 25 November 2003 in Zagreb, published in 2003.

- **Lika** - a mountainous region surrounded by Velebit, Kapela and Plješivica. According to the legend, the name has the origin in a health spring.

- **liman** - marine peloid formed in calm shallow coves into which a river or brook flows. Formed in three phases: in *river phase* a river brings minerals and marine organism sediments to river mouth; in *marine phase* sea water overflows the mouth of river, then a narrow land mass divides sediments from sea water and the *third phase* begins.

- **liman therapy** - the medical use of liman.

- **Lipički studenac** - commercial name of table mineral water from Lipik.

- **Lipik** - a finding site of mineral, fluorine (F), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ) - chloride (Cl), hyperthermic (60 °C) water in western part of Slavonia, 4 km southwest of Pakrac. Health resort since Roman

ing site in Podravina-Bilogora region, near Koprivnica.

times, revived in 1839, with Special hospital for medical rehabilitation. The water is used as a table drinking water.

- **Lokrum** - a climatic and thalassotherapeutic island in southern Dalmatia, 0.7 km southeast of Dubrovnik. Health resort since 1920.

- **Lokunja** - a marine peloid finding site in Dalmatia, on the island of Pag.

- **Lokve** - a mountain climatic health resort (723 m) in Gorski kotar, 8 km southwest of Delnice.

- **Lokvišće** - a marine peloid finding site in Hrvatsko primorje, near Jadranovo.

- **Lopar** - a climatic and thalassotherapeutic health resort in the northwestern part of the island of Rab.

- **Lopud** - a climatic and thalassotherapeutic island in southern Dalmatia, northwest of Dubrovnik.

- **Lošinj** - a climatic and thalassotherapeutic island in Kvarner bay.

- **Lovran** - a climatic and thalassotherapeutic health resort on the southeastern coast of Istria, 5 km south of Opatija. Health resort since 1898, with Clinical hospital for orthopedics.

- **low peat** - peat containing 75-90% water, 30-99% organic and 1-70% inorganic compounds.

- **Ludbreg s. Katalena**

- **lukewarm springs s. hliarothermic springs**

- **lukewarm waters s. acratothermic waters**

- **Lumbarda** - a climatic and thalassotherapeutic health resort in Dalmatia, on the eastern part of the island of Korčula, 6 km southeast of the town of Korčula.

- **Lunjkovec** - a finding site of mineral, sodium (Na) - chloride (Cl), hyperthermic (95 °C) water in Podravina, near Ludbreg.

## LJ

- **Lječilišta, zdravlje, stres** - a collection of 32 papers written by 57 authors edited by Goran Ivanišević. Proceedings of the sym-

## M

- **Mađarevo s. Kamena Gorica**
- **Madarinci** - a thermomineral water finding site.
- **Majsec, Marcel Sr.** (1911-1994) - primarius, specialist physiatrist, balneologist. Director of health resort and hospital in Krapinske Toplice from 1956 until 1980.
- **Makarska** - a climatic and thalassotherapeutic health resort in southern Dalmatia, beneath Biokovo mountain. Health resort since 1962, with Special hospital for medical rehabilitation "Biokovka".
- **Makirina** - a marine peloid finding site in Dalmatia, near Pirovac.
- **Maksimilianeum** - a thermal bath in Stubičke Toplice.
- **Mali Lošinj** - a climatic and thalassotherapeutic health resort in Kvarner bay, on the island of Lošinj. Health resort since 1892.
- **Malinska** - a climatic and thalassotherapeutic health resort in Kvarner bay, on the island of Krk.
- **Mandić, Veljko** (1917-1992) - professor, specialist orthopedist, physiatrist, balneologist. Director of Zavod za fizikalnu medicinu i rehabilitaciju in Zagreb, Demetrova 18. Wrote numerous balneologic expertises.
- **Marijina kupelj** - a bath in Daruvarske toplice.
- **marine remedies** - natural remedies of sea and seaside: climate, clean air, sea water, algae, plants, walking trails, solar rays, sand and marine peloid.
- **marine therapy** s. **thalassotherapy**
- **Markovići** (near Moravče) s. **Glavica donja**
- **mastic therapy** - medical use of mastics.
- **mastics** - preparation of 30% naphtalane in paraffin for thermal medical use.
- **medical programmed active rest (MPAR)** - set of programmed activities for adults and elderly aimed to improve general psychophysical capacity. Performed during minimum 10 days, and includes three hours of medium to strong activity in the morning, and two hours of low activity in the afternoon, as well as other activities.
- **medical tourism** s. **medicinal tourism**
- **medicinal tourism** - use of natural remedies and/or procedures of physical medicine and rehabilitation in prevention, treatment, recuperation and rehabilitation of certain diseases in tourist objects.
- **medicinal wellness** - various wellness procedures performed by medical personnel under the doctor's supervision. s. **wellness**
- **meteoropathy** - diseases caused by meteorological elements and factors.
- **meteorophysiology** - the science that deals with effects of meteorological elements and factors on physiological processes.
- **microbioclimatology** - the science that deals with effects of climate on microbes.
- **microclimate** - climate of small area under the strong influence of surface and environment.
- **Migalovci** - a finding site of sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic posium organized by the Croatian Academy of Medical Sciences, held on 7-9 September 2007 in Veli Lošinj. Published in 2007.



(21.5 °C) water in Slavonia, near Slavon-  
ski Brod.

- **Miholić, Stanko** (1891-1960) - professor, chemist, balneologist. Researched great number of mineral waters in Croatia.
- **Milna** - a climatic and thalassotherapeutic health resort in Dalmatia, on western coast of the island of Brač, 20 km southwest of Supetar.
- **mineral waters** - natural spring waters with concentrations of minerals or gases not present in ordinary waters higher than 1 g/l.
- **Mineralne i termalne vode SR Hrvatske** - monograph written by Hrvoje Iveković and Renata Peroš, published in 1981. Contains comprehensive bibliography, from the first printed works in 1622 until the beginning of 1975, on all mineral water and peloid finding sites in Croatia.
- **Mir** - a marine peloid finding site in Dalmatia, on southeast part of the island of Dugi otok.
- **Mladost s. Zagreb - Mladost**
- **Mlini** - a climatic and thalassotherapeutic health resort in southern Dalmatia, on

northern coast of Župa bay, 11 km south-  
east of Dubrovnik.

- **Mljet** - an island suitable for climatotherapy and thalassotherapy in southern Dalmatia, south of Pelješac peninsula.
- **Mokošica** - a finding site of sodium (Na) - chloride (Cl), cold (16.4 °C) water in southern Dalmatia, on northern coast of Rijeka Dubrovačka (Ombla).
- **Morinj** - a marine peloid finding site in Dalmatia, near Jadrtovac, 8 km of Šibenik.
- **Morski ljekoviti činitelji u Hrvatskoj** - a collection of 16 papers by 26 authors edited by Goran Ivanišević. Proceedings of the symposium of the Croatian Academy of Medical Sciences, held on 8-10 September 2000 in Veli Lošinj. Published in 2000.
- **mountain-climbing** - recreational movement in mountain region and/or walking on the mountain tops.
- **MPAR s. medical programmed active rest**
- **muriatric waters** - sodium chloride waters. s. **salt waters**

## N

- **Naftalan s. Ivanić Grad**
- **naphtalane** - heavy oil used in medical treatment. Finding sites in Ivanić Grad (Croatia) and Naftalan (Azerbaijan).
- **naphtalane therapy** - the medical use of naphtalane.
- **Našice** - a peloid finding site in eastern Slavonia, 51 km southwest of Osijek.
- **natural remedies** - parts of natural attractions that have a favorable effect on preservation and improvement of health and the quality of life, as well as prevention, treatment, recuperation and rehabilitation of various diseases.
- **natural remedies health resort** - health resort that uses natural remedies and pro-

cedures of physical and medicine rehabilitation in prevention, specialist consultative and hospital rehabilitation.

- **naturopathy** - non-medicamentous treatment using physical remedies: heat, water, light and massage.
- **neptunic waters s. vadous waters**
- **Nin** - a climatic and thalassotherapeutic health resort and marine peloid finding site in northern Dalmatia, 17 km north of Zadar. Health resort since 1960, with summer outdoor clinic for peloid therapy.
- **Novak, Renata** (1919-1993) - magister of pharmacy, balneologist. For many years worked in Zavod za fizikalnu medicinu i rehabilitaciju in Zagreb, Demetrova 18. Wrote

many balneologic analyses and expertises of thermomineral waters and peloids.

- **Novalja** - a climatic and thalassotherapeutic health resort in Dalmatia, on the southwestern coast of the island of Pag.
- **Novi Marof** - a climatic health resort (184

## NJ

- **Njivice** - a climatic and thalassotherapeutic health resort in Kvarner bay, on

## O

- **O klimatoterapiji našega mora** - a collection of 20 papers by 22 authors published in 1940 in medical library of *Liječnički vjesnik*.
- **Obradovci** - a finding site of sodium (Na) - chloride (Cl), isothermic (36 °C) water in Slavonia, near Orahovica.
- **Odabrana poglavlja iz balneologije** - a collection of seven papers by six authors published in 1938 as reprint anthology from *Liječnički vjesnik*.
- **Odbor za zdravstveni turizam** - Committee on health tourism. Founded on 3 June 1994 within the Croatian Academy of Medical Sciences for research of natural remedies and their use in medicine, tourism, and elsewhere. Presidents: Theodor Dürriegl (from 1994 until 1995), Antun Franović (from 1996 until 1999), and Goran Ivanišević (since 1999).
- **Odbor za zdravstveni turizam i prirodne ljekovite činitelje** - the title of *Odbor za zdravstveni turizam* (s.) since 1999.
- **Odjel za balneoklimatologiju s. Zavod za fizikalnu medicinu i rehabilitaciju**
- **Odjel za balneologiju i fizikalnu terapiju** - the first balneologic department of the Neuropsychiatry clinic of the Faculty of Medicine in Zagreb. Heads: Aleksej Kuljženko (1872-1952) and Drago Čop (1898-1963).

m) in Hrvatsko zagorje, 18 km south of Varaždin, with Hospital for pulmonary diseases, tuberculosis and chronic diseases.

- **Novi Vinodolski** - a climatic and thalassotherapeutic health resort in Hrvatsko primorje, 9 km southeast of Crikvenica.

the western coast of the island of Krk.

- **Odsjek za kupališna i rudna vrela** - founded in Ministarstvo zdravlja Nezavisne države Hrvatske, provided balneologic service in the period from 1941 until 1945.
- **Ombla Dubrovačka s. Mokošica**
- **Omiš** - a climatic and thalassotherapeutic health resort in Dalmatia, on Poljica coast, 26 km southeast of Split.
- **Omišalj** - a climatic and thalassotherapeutic health resort in Kvarner bay, on the northwestern part of the island of Krk.
- **Opatija** - a climatic and thalassotherapeutic health resort on the eastern coast of Istria, beneath Učka mountain, 13 km southwest of Rijeka. Health resort since 1889, with Special hospital Thalassotherapia for cardiovascular and rheumatic diseases (*Referral Center for Health Tourism and Medical Programmed Rest of the Croatian Ministry of Health*).
- **Opatija - promotor zdravstvenog turizma** - a collection of 36 papers edited by Igor Rožanić. Proceedings of the symposium organized by Thalassotherapia Opatija, Hotelijerski fakultet Opatija and Hrvatsko-austrijsko društvo Rijeka, held on 13-15 November 1996 in Opatija. Published in 1996.
- **Orahovica** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate (HCO<sub>3</sub>), isothermic (22 °C) water in Sla-

vonja, in the northern part of Krndija, 20 km northwestern of Našice.

- **Ordinarijat za balneoklimatologiju** - office for balneoclimatology at the Faculty of Medicine in Zagreb in the period from 1941 until 1945.
- **Orebić** - a climatic and thalassotherapeutic health resort in Dalmatia, on Pelješac peninsula.
- **organic peat compounds** - organic compounds of peats, namely bitumen (soluble in benzole alcohol), pectins (soluble in hot water), cellulose, hemicellulose and minor quantity of proteins (soluble in acids), humin, hymatomelan and humolignin acids

## P

- **Pag** - climatic and thalassotherapeutic health resort in Dalmatia, on the island of Pag.
- **Paklenica** - a finding site of iodine (I), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ) - chloride (Cl), cold water in western Slavonia, near Novska. 2. A national park and climatic health resort and region in south-eastern part of Velebit coast, in the vicinity of Starigrad.
- **peat** - underwater loose sediment formed by sedimentation of predominantly organic matter humificated in acidic medium.
- **peat soil** - peat with 70-77% water, 30-50% organic and 50-70% inorganic matter.
- **peloid density** - the mass-to-volume ratio of peloids. Higher in mineral peloids (2.9) than in peat (1.4). The density of a peat bath of normal dilution is similar to density of a water bath, as it contains 90-95% water.
- **peloid heat conductivity** - quantity of heat (gcal) which is transferred in one second through  $1 \text{ cm}^3$  of peloid, if the temperature in opposite direction falls for  $1 \text{ }^\circ\text{C}$  per 1 cm height. In peats and bitumen peloids it is lower than heat transfer of water (0.0013), in muds and mineral peloids

(soluble in alkalis, sedimented in acids), fulvoacids (soluble in alkalis, not sedimented in acids), lignins and their products of humification - humins (not soluble).

- **organic peloid compounds** - unchanged or biologically and chemically changed parts of different plant and animal organisms, together with more or less broken down products of their metabolism. The quantity of total organic matter is higher in peat than in mineral peloids.
- **Oroslavlje** - a healing water finding site in Hrvatsko zagorje, in northern part of Medvednica, in the vicinity of Stubičke Toplice, 31 km north of Zagreb.

it is higher. Inorganic peloids are better conductors than organic ones, more water in organic peloids improves heat transfer, less water in organic peloids lowers heat conductivity.

- **peloid heat retention** - ratio of peloid heat capacity and peloid heat conductivity ( $\text{s/cm}^3$ ). Shows how long it takes a  $1 \text{ cm}^3$  cube to change its temperature by  $1 \text{ }^\circ\text{C}$  if the heat intake or loss is equal to the number of calories indicated in heat conductivity. Higher in peats (around 900) than in mineral peloids (around 260).
- **peloid sedimentation volume** - volume (in  $\text{cm}^3$ ) of 1 g of peloid after 7-14 days of sedimentation in surplus water. It depends on peloid density and swelling capacity. Higher in peat (around  $49 \text{ g/cm}^3$ ) than in mineral peloids (around  $3 \text{ g/cm}^3$ ).
- **peloid specific heat** - quantity of heat needed to raise temperature of 1 g of peloid by  $1 \text{ }^\circ\text{C}$ . In all peloids it is smaller than 1 (which is the specific heat of water). Higher in peat (around 0.33) than in mineral peloids (around 0.19).
- **peloid swelling degree** - volume quotient of naturally wet peloid and sedimentation

- volume of completely dried peloid. Higher in peat (12) than in mineral peloid (1.5).
- **peloid therapy** - medical use of peloids and/or their preparations.
  - **peloid thermal capacity** - specific heat capacity of 1 cm<sup>3</sup> peloid (specific heat × density). In normally diluted peloids it is near the heat capacity of water. Higher in peat (around 0.99) than in mineral peloids (around 0.91).
  - **peloid water binding capacity** - the capacity of peloid to bind with water, expressed in quantity of water in grams which binds with 1 g of peloid at room temperature, exclusive of evaporation. Higher in peat (around 24) than in mineral peloids (around 0.3).
  - **peloids** - underwater loose sediments formed by sedimentation of inorganic matter. They consist of water, inorganic and organic matter (5-25%). According to composition they are classified as: clay, lime and silicium; according to their special composition: sulfide, ochre, phosphate, iron and sulfur; according to their place of origin: marine, freshwater and spring peloids.
  - **Petrinja** - a thermomineral water finding site in Banovina, 13 km southwest of Sisak.
  - **petroleum waters** - fossil waters (s.) rich in iodine (s. **iodine waters**) found in oil wells.
  - **phytobioclimatology** - the science that deals with the effects of climate on plants.
  - **phytotherapy** - medical use of medicinal plants and their remedies.
  - **Pintač, Đuro** (1928-1997) - primarius, specialist physiatrist, balneologist. Director of special hospital for medical rehabilitation in Varaždinske Toplice from 1965 until 1985.
  - **Pirovac s. Makirina**
  - **Plavšić, Čedomil** (1902-1987) - professor, specialist of internal medicine, cardiologist, balneoclimatologist. The pioneer of cardiac rehabilitation. In 1956 revived, and was director of *Thalassotherapie* in Opatija.
  - **Pleško, Nada** (1932-2001) - doctor of sciences, biometeorologist. Wrote many bioclimatic prospects of health resorts in Croatia.
  - **Plevko, Oskar** (1925-1965) - professor, specialist physiatrist, rheumatologist, balneologist. Former director of *Zavod za fizikalnu medicinu i rehabilitaciju Medicinskoga fakulteta Sveučilišta u Zagrebu*, Demetrova 18.
  - **Plitvička jezera** - a national park and mountain climatic health resort (503-639 m) in Lika.
  - **plutonic waters s. juvenile waters**
  - **Podgora** - a climatic and thalassotherapeutic health resort in Dalmatia, on Makarska coast, 9 km southeast of Makarska.
  - **Podsused** - a finding site of several springs (wells) of thermomineral water in Podsused, near Zagreb.
  - **Pojmovnik balneoklimatologije i prirodnih ljekovitih činitelja u Hrvatskoj** - a glossary of balneoclimatology and natural remedies terms, written by Goran Ivanišević. Published in 2001 by the Croatian Academy of Medical Sciences.
  - **Pojmovnik hrvatskog balneološkog nazivlja** - a glossary of natural remedies terms, written by Goran Ivanišević. Published in 2006 by the Croatian Academy of Medical Sciences.
  - **Poljud** - a former marine peloid finding site in Split.
  - **Popović brdo** - a finding site of mineral, sodium (Na) - calcium (Ca) - hydrogen carbonate - (HCO<sub>3</sub>), carbon dioxide (CO<sub>2</sub>) water in Banovina.
  - **Prečec** - a finding site of mineral, iodine (I), sodium (Na) - chloride (Cl), cold (19.6 °C) water in Slavonia, near Novska.
  - **Prirodni ljekoviti činitelji u Hrvatskoj** - a collection of 15 papers by 23 authors edit-

ed by Goran Ivanišević. Proceedings of the symposium organized by the Croatian Academy of Medical Sciences, held on 29 January 2000 in Zagreb. Published in 2000.

- **Priradni ljekoviti činitelji u promicanju zdravlja čovjeka u 21. stoljeću** - a collection of eight papers by nine authors and Croatian translation of the 11<sup>th</sup> edition of German "Glossary - The Quality Standards for Classification of Health Resorts, Recuperation Places and Healing Springs", edited by Goran Ivanišević and Silva Potrebića. Proceedings of the symposium of the

## R

- **Rab** - 1. An island suitable for climatology and thalassotherapy. 2. A climatic and thalassotherapeutic health resort on the island of Rab. Health resort since 1914, revived in 1954 as the Department for Thalassotherapy of Internal Clinic of KBC Zagreb - Rebrow.
- **Radoboj** - a sulfur water finding site in Hrvatsko zagorje, 8 km east of Krapina.
- **Ratarnica s. Križevčanka 1**
- **recuperation place** - institution and/or place for recuperation from heavy diseases and/or operations.
- **recurrent waters s. vadous waters**
- **Referentni centar za zdravstveni turizam i medicinski programirani odmor** - Referral Center for Health Tourism and Medical Programmed Rest of the Croatian Ministry

## S

- **Sali s. Mir**
- **salt mine** - salt mine with special microclimate, used for medical treatment.
- **salt mineral waters** - mineral waters with more than 240 mval%/l of sodium (Na) and chlorine (Cl).
- **salt peloid therapy** - medical use of salt peloid.

Croatian Academy of Medical Sciences, held on 3-4 December 2001 in Varaždinske Toplice. Published in 2002.

- **programmed active rest** - set of various body activities aimed to improve health, facilitate weight loss and prevent diseases.
- **protection of nature** - human activities aimed against the damaging nature and its balance.
- **psamotherapy** - medical use of sand.
- **Punat** - a climatic and thalassotherapeutic health resort in Kvarner bay on the island of Krk, 8 km southeast of the town of Krk.

of Health. Since 7 February 1999: Thalassotherapy Opatija.

- **rest house** - health institution for recuperation after heavy diseases and/or operations.
- **resting place** - natural and/or artificial place for rest on a walking trail.
- **Rogoznica** - a finding site of mineral, sodium (Na) - chloride (Cl), cold (14 °C) water and peloid in central Dalmatia, 25 km south of Šibenik.
- **Rolinc, Jaroslav (1927)** - primarius, specialist gynecologist, balneologist. The director of health resort and hospital in Daruvarske toplice from 1961 until 1987.
- **Rovinj** - a climatic and thalassotherapeutic health resort in western Istria, 36 km northern of Pula. Health resort since 1906, with Special orthopedic hospital.

- **salt peloids** - marine peloids, similar to liman, formed in salt basins by the evaporation of sea water which leaves sodium chloride.
- **salt waters s. salt mineral waters**
- **salt waters** - waters with more than 1 g of sodium (Na), potassium (K) and chlorine (Cl) per liter.



- **Samobor s. Šmidhenovo kupalište**
- **sanatorium conditions** - conditions for optimal use of natural remedies in health and medicinal tourism (sanatorium programme, special diet, morning exercise, outdoor activities, social program, exclusion of alcohol abuse, exclusion of drug abuse, exclusion of smoking, exclusion of air pollution, exclusion of noise pollution).
- **sanatorium s. health resort**
- **sand** - natural sediment containing small grains of equal size.
- **sapropel** - bituminous peloid formed by eusapropification (complete putrefaction) in deep water without presence of oxygen by bacteria that reduce organic matter and sulfate to hydrogen sulfide.
- **Savjet za zdravstveni turizam** - Council for Health Tourism. Founded in April 1999 within the Ministry of Tourism of the Republic of Croatia.
- **Savudrija** - a climatic and thalassotherapeutic health resort in western Istria, 8 km north of Umag.
- **sc thermae s. thio-cyanophitic thermae**
- **sea** - water surface covering 70.8% of Earth. Rich in diverse plant and animal world, of which natural remedies are used for medical treatment.
- **sea health resort** - health institution which uses marine remedies and procedures of physical medicine and rehabilitation in prevention, specialist consultative and hospital rehabilitation.
- **sea water** - mineral water which contains >55% chloride (Cl), >30% sodium (Na), around 8% dissolved sulfate (SO<sub>4</sub>), 4% magnesium (Mg) and around 3% other chemicals used as marine remedies.
- **seasonal biology** - biology for research of seasons on origin and development of diseases.
- **Sekcija za balneoterapiju** - Section for Balneotherapy. Founded in 1939 within the Croatian Medical Association.
- **Sekcija za reumatologiju, balneoklimatologiju i fizikalnu medicinu** - Section for Rheumatology, Balneoclimatology and Physical Medicine. Founded in 1947 within the Croatian Medical Association. The founders were physiatrists L. Trauner, J. Budak, Herman Jurak (1910-1994) and Anka Zdunić (1900-1969), specialists for internal medicine Lujo Thaller (1891-1949) and Dinko Sučić (1896-1981), neurologist Josip Breitenfeld (1898-1964) and neurosurgeon Danko Riessner (1907-1972). President: J. Budak; secretary: L. Trauner.
- **Sekcija za talasoterapiju** - Section for Thalassotherapy. Founded in 1988 within the Croatian Medical Association. President: Ivan Brožičević; secretary: Juraj Šajatović.
- **Selce** - a climatic health resort in Hrvatsko primorje on the coast of Vinodol canal, 3 km southeast of Crikvenica.
- **Senj** - a climatic and thalassotherapeutic health resort in Hrvatsko primorje, in Velebit canal.
- **Siegenthalova kupelj** - a bath in Daruvarske toplice.
- **Siegenthalovo vrelo** - a spring in Daruvarske toplice.
- **Silba** - a climatic and thalassotherapeutic island in Zadar archipelago.
- **Sisačko jodno lječilište** - a finding site of mineral, iodine (I), sodium (Na) - chloride (Cl), hyperthermic (53 °C) water in Posavina, 57 km southeast of Zagreb. Health resort since 1932, currently Department for Physical Medicine and Rehabilitation.
- **Sjeverno vrelo** - a spring in Velika.
- **Skrad** - a mountain climatic health resort (700 m) in the central part of Gorski kotar, 16 km northeast of Delnice.
- **Skupnjak, Berislav (1930)** - primarius, specialist for social medicine. Pioneer of health tourism in Croatia.
- **Slani potok** - a finding site of mineral, sodium (Na) - calcium (Ca) - chloride (Cl)

- sulfate (SO<sub>4</sub>) water in Hrvatsko zagorje, in Gornja Stubica.
- **Slanje** - a healing water finding site in Hrvatsko zagorje, near Varaždinske Toplice.
- **Slano** - a climatic and thalassotherapeutic health resort in Dalmatia, 37.5 km north-west of Dubrovnik.
- **Slano jezero s. Mir**
- **Slavetić s. Svetojanske Toplice**
- **Slavonsko more s. Bizovac**
- **Smokvica** - a climatic and thalassotherapeutic health resort in Dalmatia, on the inner part of the island of Korčula, 10 km east of Blato.
- **Smrdeće toplice s. Tuheljske Toplice**
- **soil loose sediments** - peloids formed as the result of crumbling of rocks and stones outside waters. Contain more than 95% inorganic matter and are used in healing mixed with water.
- **Solaris** - a hotel complex in Dalmatia, 6 km south of Šibenik, From 1981 until 1995 Zavod za thalassoterapiju, since 2003 wellness center.
- **Soline** - a thalassotherapeutic place near Rovinj.
- **spa** - 1) Abbreviation for *salus per aquam* (healing by water). 2) Small town in Belgium, near Liège, with mineral water spring. 3) Mineral water spring. 4) Finding site and/or the place of use of natural balneologic remedies. 5) Summer resort with mineral water spring and other natural remedies. 6) Institution with various facilities for health improvement.
- **spa health resort** - health institution with balneologic natural remedies and procedures of physical medicine and rehabilitation used in prevention, specialist consultative and hospital rehabilitation.
- **spa remedies** - natural remedies with origin in geologic processes: thermomineral waters, peloids, and naphthalene; along with climate, clean air, plants and walking trails for medical use.
- **special hospital** - health institution for special, consultative and hospital treatment of some diseases, chronic diseases or special age and medical rehabilitation without natural remedies.
- **speleotherapy** - stay in a cave for reasons of medical treatment.
- **spherics** - ultra long electromagnetic waves caused by electric storms and atmospheric discharges. Causing premonition of weather change and meteoropism.
- **Split** - a climatic and thalassotherapeutic health resort in Dalmatia and finding site of mineral, sulfur (S), sodium (Na) - chloride (Cl), hypothermic (21 °C) water and marine peloid.
- **Splitske toplice** - a health resort in Split since Roman times, revived in 1821, from 1962 until 1993 Hospital for Rheumatic Diseases and Rehabilitation, currently Department for Physical Medicine and Rehabilitation.
- **spring peloids** - peloids formed near springs of thermal or mineral waters or springs in natural peloid basins.
- **Srebreno** - a climatic and thalassotherapeutic health resort in Dalmatia, in Župa Dubrovačka, 10 km southeast of Dubrovnik.
- **Stalni balneološki savjet Banovine Hrvatske** - founded in 1940 in Odjel za narodno zdravlje, provided balneologic service in Croatia.
- **Stari grad** - a climatic and thalassotherapeutic health resort in Dalmatia, on the northwestern part of the island of Hvar.
- **Strekovačko vrelo** - a mineral water finding site near Karlovac.
- **Strmac-Šumetlica** - a climatic health resort (360 m) in western Slavonia, 12 km north of Nova Gradiška.
- **Strugača** - a healing water finding site in Hrvatsko zagorje, near Sutinske Toplice.
- **Stubičke Toplice** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate (HCO<sub>3</sub>) - sulfate (SO<sub>4</sub>), hyperthermic

(65 °C) water in Hrvatsko zagorje, beneath the northern part of Medvednica, 3 km west of Donja Stubica. Health resort since Roman times, revived in 1776, currently Special Hospital for Medical Rehabilitation.

- **Stupnik** - a thermomineral water finding site, 10 km southwest of Zagreb.
- **summer resort** - summer tourist place for rest and recreation.
- **Susak** - a climatic and thalassotherapeutic health resort and sand finding site on the island of Susak in Kvarner bay, west of the island of Lošinj. Health resort from 1913 until 1914.
- **Sutinska vrela** - a finding site of several springs of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (24 °C) water near Podsused, Zagreb.
- **Sutinske Toplice** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), isothermic (36 °C) wa-

## Š

- **Šalata s. Zagreb - Šalata**
- **Šemnica** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (31 °C) water in Hrvatsko zagorje, near Sveti Križ Začretje.
- **Šemničke toplice s. Šemnica**
- **Šibenik** - a climatic and thalassotherapeutic health resort in central Dalmatia. s. **Solaris**
- **Šimunovec** - a thermomineral water finding site in Hrvatsko zagorje, near Stubičke Toplice.
- **Šipan** - a climatic and thalassotherapeutic island in southern Dalmatia, 17 km northwest of Dubrovnik.

## T

- **Taborština** - a healing water finding site.
- **Terme Tuhelj s. Tuheljske Toplice**

ter in Hrvatsko zagorje, 8 km northwest of Zlatar.

- **Sutivan** - a climatic and thalassotherapeutic health resort in Dalmatia, on the island of Brač.
- **Sveta Helena** - a finding site of calcium (Ca) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (25.7 °C) water northwest of Samobor.
- **Sveti Ivan Zelina** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (24 °C) water in Hrvatsko zagorje, on southeast part of Medvednica, 37 km northeast of Zagreb.
- **Sveti Martin s. Vučkovečke toplice**
- **Sveti Stjepan s. Istarske Toplice**
- **Svetojanske Toplice** - a finding site of two oligomineral calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (25 °C) water near Jastrebarsko, 32 km southwest of Zagreb.

- **Šmidhenove toplice s. Šmidhenovo kupalište**
- **Šmidhenovo kupalište** - a finding site of several springs of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (25.7 °C) water near Samobor, 23 km west of Zagreb.
- **Špišić, Božidar** (1879-1957) - Croatian orthopedist, in 1937 introduced a course in balneology at the Faculty of Medicine in Zagreb.
- **Štrigova s. Vučkovec**
- **Šumečani** - a finding site of mineral, fluorine (F), sodium (Na) - chloride (Cl), hyperthermic (54 °C) water in Moslavina, near Ivanić Grad.

- **thermal comfort** - sensation of temperature on the skin as a result of temperature,



humidity, and wind.

- **thalassoclimatology** - medical science that deals with climatology of marine remedies.
- **thalassology** - medical science that deals with marine remedies.
- **thalassoreaction** - general reaction 5-12 days after application of marine remedies.
- **thalassotherapy** - marinotherapy, the medical use of marine natural remedies.
- **therapeutic horse riding** - medical horse riding in specially adjusted saddle.
- **thermae s. spa**
- **thermal waters** - natural waters with spring temperature  $>20.0\text{ }^{\circ}\text{C}$ .
- **thermalism** - the medical use of thermal water and peloid.
- **thio-cyanophitic thermae - cyanophitic thermae** (s.) characterized by sulfur bacteria (Leucothiobacteria).
- **thiophitic thermae** - tepid (lukewarm) springs predominantly characterized by sulfur bacteria, while Cyanophyceae are less present.
- **Tiskovac** - a mineral water finding site.
- **Tisno** - a climatic and thalassotherapeutic health resort in Dalmatia, on the island of Murter.
- **Top terme s. Topusko**
- **Toplica s. Topusko**
- **Toplice sv. Jana - s. Svetojanske Toplice**
- **Topličica** - 1. A sulfur water finding site near Gornji Stenjevac in Zagreb. 2. A thermal water finding site in Hrvatsko zagorje, near Zajezda, 15 km north of Konjščina.
- **Topličica** (near Gotalovec) s. **Gotalovec**
- **Topličica** (near Mađarevo) s. **Kamena gorica**
- **Topličica** (near Oroslavlje) s. **Oroslavlje**
- **Topličica** (near Sveta Jana) s. **Svetojanske Toplice**
- **Topličica** (near Sveti Ivan Zelina) s. **Sveti Ivan Zelina**

## U

- **Ugljan** - an island suitable for climatology and thalassotherapy in Dalmatia,

- **Toplički ljekoviti činitelji u Hrvatskoj** - a collection of 20 papers by 44 authors edited by Goran Ivanišević. Proceedings of the symposium organized by the Croatian Academy of Medical Sciences, held on 16-17 February 2001 in Stubičke Toplice. Published in 2001.
- **Topusko** - a finding site of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ) - sulfate ( $\text{SO}_4$ ), hyperthermic ( $54\text{ }^{\circ}\text{C}$ ) water and peat (s. **Čret**) in Banovina, 46 km southwest of Sisak. Health resort since Roman times, revived in 1818, currently Health Resort.
- **tourism** - set of connections and adventures relating to the activities of persons traveling or stay out of their permanent place of residence continuously up to one year, for reasons of leisure, rest, business or other reasons.
- **tourist resort** - tourist place with natural remedies and developed health tourism facilities.
- **Trauner, Leo** (1893-1963) - specialist balneoclimatologist. Researched natural remedies as a long term associate of Balneološko-klimatološki zavod in Zagreb, Demetrova 18 (Veli Lošinj, Topusko etc.).
- **Trogir** - a climatic and thalassotherapeutic health resort in central Dalmatia, on the coast of Kaštela bay, 27 km west of Split.
- **Trpanj** - a marine peloid finding site in Dalmatia, on the northern part of Pelješac peninsula, 11 km northeast of Orebić.
- **Trstenik** - a climatic and thalassotherapeutic health resort in Dalmatia, on Pelješac peninsula.
- **Tuheljske Toplice** - a finding site of several springs of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic ( $33\text{ }^{\circ}\text{C}$ ) water and peloid in Hrvatsko zagorje, 46 km northwest of Zagreb.

in Zadar archipelago.

- **underwater loose sediments** - peloids

formed in quiet stagnant waters (lakes and seas) and river bays, or around mineral and thermal springs.

### ■ *Uprava kupališta i prirodnih lječilišta*

## V

- **vadous waters** - neptunic waters. Volcanic waters of changeable composition and temperature which depend on rainfall and environment temperature.
- **Valpovačke toplice s. Bizovac**
- **Varaždinske Toplice** - a finding site of several springs of mineral, sulfur (S), calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ) - chloride (Cl), hyperthermic (58 °C) water and peloid (s. **Košćevac**) in Hrvatsko Zagorje, 12 km southeast of Varaždin. Health resort since Roman times, revived in 1838, with Special Hospital for Medical Rehabilitation.
- **Vela Luka** - a climatic and thalassotherapeutic health resort in Dalmatia, on western coast of the island of Korčula. Finding site (spring Kalac) of mineral, sodium (Na) - calcium (Ca) - chloride (Cl) - hydrogen carbonate ( $\text{HCO}_3$ ), cold (16 °C) water and marine peloid. Health resort since 1955, since 1972 Special Hospital for Medical Rehabilitation "Kalos".
- **Veli Lošinj** - a climatic and thalassotherapeutic health resort in Kvarner bay, on the eastern coast of the southern part of the island of Lošinj. Health resort since 1892, currently Health Resort.
- **Velika** - a finding site of two springs of calcium (Ca) - magnesium (Mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (29 °C) water in Slavonia, in southern part of Papuk in Požega region, 14 km north of Požega.
- **Velika Ciglena** - a thermomineral water finding site in Podravina-Bilogora region, near Bjelovar.
- **Vidnjevići** - a peat finding site in Banovina, near Gvozd.
- an institution within the Ministry of Health which provided balneologic service in Croatia from 1945 until 1949.
- **Vinkovačko Novo Selo** - a finding site of sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ) - chloride (Cl), cold (18.5 °C) water in eastern Slavonia, near Vinkovci.
- **Vinkovci - željeznička stanica (railway station)** - a finding site of mineral, iodine (I), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (20 °C) water in Slavonia.
- **Vis** - 1. An island in Dalmatia suitable for climatotherapy and thalassotherapy. 2. A climatic and thalassotherapeutic health resort on the island of Vis.
- **Vouk, Vale** (1886-1962) - professor, botanist and balneobiologist.
- **Vratno** - a finding site of calcium (Ca) - magnesium (mg) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic (22 °C) water in Podravina-Bilogora region, near Križevci.
- **Vrbica** - a mineral water finding site beneath Veljun (Kordun).
- **Vrbnik** - a climatic and thalassotherapeutic health resort in Kvarner bay, in the central part of the northeastern coast of the island of Krk, 12 km of the town of Krk.
- **Vrboska** - a climatic and thalassotherapeutic health resort in Dalmatia, in the central part of the northern coast of the island of Hvar.
- **Vrelo Topličica s. Topusko**
- **Vrelo u bari s. Tuheljske Toplice**
- **Vretenica** - a finding site of calcium (Ca) - hydrogen carbonate ( $\text{HCO}_3$ ), cold (12.2 °C) water in Kvarner bay, on the island of Krk.
- **Vrlika** - a finding site of cold (14 °C) water in Cetina krajina, near Peruća lake, 40 km northwest of Sinj.

- **Vučkovec s. Vučkovečke toplice**
- **Vučkovečke toplice - Filipan-1** - a finding site of mineral, iodine (I), fluorine (F), sodium (Na) - chloride (Cl) - hydrogen carbonate ( $\text{HCO}_3$ ), cold ( $<20.0$  °C) water;
- E-17** - a finding site of iodine (I), sodium (Na) - chloride (Cl) - hydrogen carbonate ( $\text{HCO}_3$ ), hypothermic ( $33.4$  °C) water in Međimurje, in Vučkovec, 14 km north-west of Čakovec.

## W

- **warm springs s. euthermae**
- **winter resort** - tourist place for winter

## Z

- **Zablaće** - a climatic and thalassotherapeutic health resort and marine peloid finding site in Dalmatia, near Šibenik.
- **Zagreb** - a city with several springs of thermal water: Blato, Čučerje, Dubrava, Mladost, Šalata.
- **Zagreb - Blato** - a finding site of several springs of thermal water in southern part of Zagreb.
- **Zagreb - Čučerje** - a finding site of several springs of thermal sulfur radioactive water, 14 km northeast of the centre of Zagreb.
- **Zagreb - Dubrava** - a sulfur water finding site in eastern part of Zagreb.
- **Zagreb - Mladost** - a thermal water finding site in Zagreb.
- **Zagreb - Šalata** - a thermal water finding site in Zagreb.
- **Zajednica zdravstvenog turizma** - since October 1995 active within the Croatian Chamber of Commerce.
- **Zakućac** - a finding site of iodine (I), sodium (Na) - chloride (Cl), cold ( $18.3$  °C) water, near Omiš.
- **Zavod za balneoklimatologiju i fizikalnu terapiju s. Zavod za fizikalnu medicinu i rehabilitaciju**

- **Vukelić, Branko (1927.)** - associate professor, primarius, specialist pediatrician, allergologist, pediatric pulmonologists, balneoclimatologist. The director of Dječja bolnica za alergijske bolesti s odjelom za odrasle in Veli Lošinj from 1967 until 1992.
- **Vukovar** - a finding site of iodine (I), sodium (Na) - hydrogen carbonate ( $\text{HCO}_3$ ), cold ( $17$  °C) water in eastern Slavonia, 19 km east of Vinkovci.

stay for rest and recreation.

- **Zavod za fizikalnu medicinu i rehabilitaciju** - 1. Founded on 28 August 1949 as *Balneološko-klimatološki institut* Uprave prirodnih lječilišta Ministarstva narodnog zdravlja NR Hrvatske. 2. *Odjel za balneoklimatologiju* Instituta za medicinska istraživanja Jugoslavenske akademije znanosti i umjetnosti from 1953 until 1958. 3. *Zavod za balneoklimatologiju i fizikalnu terapiju* Medicinskoga fakulteta Sveučilišta u Zagrebu from 1958 until 1963. 4. *Zavod za fizikalnu medicinu i rehabilitaciju* Medicinskoga fakulteta Sveučilišta u Zagrebu since 1963.
- **Zavod za talasoterapiju Solaris** - a department for medical use of marine remedies and peloid from Zablaće in Solaris hotels near Šibenik. Founded on 12 June 1980, active until mid 1990s.
- **Zdravlje - kvaliteta života** - a collection of 23 papers by 44 authors edited by Goran Ivanišević. Proceedings of the symposium organized by the Croatian Academy of Medical Sciences, held on 8-10 September 2006 in Veli Lošinj. Published in 2006.
- **Zdravstveni i lječilišni turizam - metode i programi** - a collection of 34 papers by 67

authors edited by Goran Ivanišević. Proceedings of the symposium organized by the Croatian Academy of Medical Sciences, held on 9-11 September 2005 in Veli Lošinj. Published in 2005.

- **Zdravstveni turizam i Akademija medicinskih znanosti Hrvatske** - the review of 10 years work of Odbor za zdravstveni turizam i prirodne ljekovite činitelje of the Croatian Academy of Medical Sciences by Goran Ivanišević. Published in 2003.
- **Zdravstveni turizam i prirodni ljekoviti činitelji u Hrvatskoj** - a collection of 34 papers by 69 authors edited by Goran Ivanišević. Proceedings of the symposium organized by the Croatian Academy of Medical Sciences, held on 5-7 September 2003 in Veli Lošinj. Published in 2003.
- **Zdravstveni turizam i vrednovanje prirodnih ljekovitih činitelja** - a collection of 53 papers by 107 authors edited by Goran Ivanišević. Proceedings of the symposium organized by the Croatian Academy of Medical Sciences, held on 6-8 September

2002 in Veli Lošinj. Published in 2002.

- **Zdravstveni turizam u Hrvatskoj** - a collection of 48 papers by 85 authors edited by Goran Ivanišević. Proceedings of the symposium organized by the Croatian Academy of Medical Sciences, held on 7-9 September 2001 in Veli Lošinj. Published in 2001.
- **Zdravstveni turizam za 21. stoljeće** - a collection of 61 papers edited by Igor Rožanić. Proceedings of the symposium organized by Thalassotherapia Opatija and Fakultet za turistički i hotelijerski menadžment Opatija, held on 19-21 June 2000 in Opatija. Published in 2000.
- **Zdravstveni turizam, prehrana, kretanje i zaštita okoliša u Hrvatskoj** - a collection of 32 papers by 58 authors edited by Goran Ivanišević. Proceedings of the symposium organized by the Croatian Academy of Medical Sciences, held on 10-12 September 2004 in Veli Lošinj. Published in 2004.
- **zooclimatology** - the science that deals with the effects of climate on animals.

## Ž

- **Žirovac** - a mineral water finding site in Banovina, near Topusko.
- **Župa Dubrovačka** - a climatic and tha-

lassotherapeutic region in southern Dalmatia, between Dubrovnik and Cavtat.



## LITERATURE

- *Fond stručne dokumentacije i arhivske građe*. Zagreb: Zavod za fizikalnu medicinu i rehabilitaciju Medicinskoga fakulteta Sveučilišta u Zagrebu, Demetrova 18. 1949-2007.
- Bilić J, ed. *Hrvatska. Turistički vodič*. Zagreb: Leksikografski zavod Miroslav Krleža, Masmedia. 1998:1-584.
- Čepelak R. Ekspertize Zavoda za fizikalnu medicinu i rehabilitaciju u funkciji hrvatske balneološke službe. In: Ivanišević G, ed. *Zdravstveni turizam u Hrvatskoj*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2001:219-244.
- Haramustek B, Miholić S, Trauner L. *Godišnjak Balneološko-klimatološkog instituta NR Hrvatske*. 1952;1:1-163.
- Ivanišević G, ed. *Prirodni ljekoviti činitelji u Hrvatskoj*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2000:1-133.
- Ivanišević G, ed. *Morski ljekoviti činitelji u Hrvatskoj*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2000:1-156.
- Ivanišević G, ed. *Toplički ljekoviti činitelji u Hrvatskoj*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2001:1-164.
- Ivanišević G. *Pojmovnik balneoklimatologije i prirodnih ljekovitih činitelja u Hrvatskoj*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2001:1-54.
- Ivanišević G, Potrebića S, eds. *Prirodni ljekoviti činitelji u promicanju zdravlja čovjeka u 21. stoljeću*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2002:1-147.
- Ivanišević G, ed. *Zdravstveni turizam i vrednovanje prirodnih ljekovitih činitelja*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2002:1-330.
- Skupnjak B, Čvorišćec B, Ivanišević G, eds. *Klimatske promjene i njihov utjecaj na zdravlje*. Zagreb: Akademija medicinskih znanosti Hrvatske, Hrvatsko društvo za zdravstvenu ekologiju Hrvatskoga liječničkog zbora. 2002:1-87.
- Ivanišević G. *Zdravstveni turizam i Akademija medicinskih znanosti Hrvatske*. Zagreb: Akademija Medicinski znanosti Hrvatske. 2003:1-72.
- Ivanišević G, ed. *Zdravstveni turizam i prirodni ljekoviti činitelji u Hrvatskoj*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2003:1-207.
- Fatović-Ferenčić S, Ivanišević G, eds. Zbornik radova. Liječenje vodom: pristupi i paradoksi, Zagreb 2003. *Hrvatske vode* 2003;11(44):209-364.
- Ivanišević G, ed. *Zdravstveni turizam, prehrana, kretanje i zaštita okoliša u Hrvatskoj*. Zagreb: Akademija Medicinski znanosti Hrvatske. 2004:1-229.
- Ivanišević G, ed. *Zdravstveni i lječilišni turizam - metode i programi. Knjiga izlaganja na znanstvenom skupu*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2005:1-208.
- Ivanišević G, ed. *Zdravlje - kvaliteta života. Knjiga izlaganja na znanstvenom skupu*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2006:1-172.
- Ivanišević G, ed. *Lječilišta, zdravlje, stres*. Zagreb: Akademija medicinskih znanosti Hrvatske. 2007:1-197.
- Ivanišević G, Domljan Z, Skupnjak B, Pleško N, Franović A, Čepelak R. Anketa o vrstama i oblicima prirodnih ljekovitih činitelja i njihovu korištenju u zdravstvenim ustanovama

- vama u Republici Hrvatskoj. In: Vidoša B, ed. *Zbornik sažetaka*. Drugi hrvatski kongres fizikalne medicine i rehabilitacije, Varaždinske Toplice 2000. 2000:133-134.
- Ivanišević G, Domljan Z, Skupnjak B, Pleško N, Luetić A. *Pojmovnik Ankete® o vrstama i oblicima prirodnih ljekovitih činitelja i njihovu korištenju u zdravstvenim ustanovama u Republici Hrvatskoj*. Zagreb: Odbor za zdravstveni turizam i prirodne ljekovite činitelje, Akademija medicinskih znanosti Hrvatske. 2000:1-3. (Unpublished)
  - Ivanišević G, Kušen E, Milas Lj. *Pojmovnik Ankete® o korištenju prirodnih ljekovitih činitelja u turističkim objektima u Republici Hrvatskoj*. Zagreb: Odbor za zdravstveni turizam i prirodne ljekovite činitelje, Akademija medicinskih znanosti Hrvatske. 2000:1-2. (Unpublished)
  - Iveković H, Peroš R. *Mineralne i termalne vode SR Hrvatske*. Zagreb: Jugoslavenska akademija znanosti i umjetnosti. 1981;I:IV,1-192.
  - Jafari J, ed. *Encyclopedia of tourism*. London and New York:Routledge, 2000:I-XXXV,1-683.
  - Novak R. Balneologija. *Medicinska enciklopedija* 1967;1:412-423.
  - Novak R. Daruvar. *Medicinska enciklopedija* 1967;2:6-7.
  - Novak R. Dubrovnik. *Medicinska enciklopedija* 1967;2:235.
  - Novak R. Hvar. *Medicinska enciklopedija* 1968;3:360.
  - Novak R. Naša prirodna lječilišta za liječenje reumatskih bolesti. In: Vargazon B, ur, *Simpozij o reumatskim bolestima*. Ljubljana: Lek. 1968:323-331.
  - Novak R. Krapinske Toplice. *Medicinska enciklopedija* 1969;4:125-126.
  - Novak R. Lasinjska carbon dioxidea. *Medicinska enciklopedija* 1969;4:253.
  - Novak R. Lipik. *Medicinska enciklopedija* 1969;4:327-328.
  - Novak R. Lošinj. *Medicinska enciklopedija* 1969;4:336-337.
  - Novak R. Opatija. *Medicinska enciklopedija* 1970;5:54-55.
  - Novak R. Peloid. *Medicinska enciklopedija* 1970;5:201-203.
  - Novak R. Rab. *Medicinska enciklopedija* 1970;5:521.
  - Novak R. Stubičke Toplice. *Medicinska enciklopedija* 1970;6:155-156.
  - Novak R. Sutinske Toplice. *Medicinska enciklopedija* 1970;6:162.
  - Novak R. Topusko. *Medicinska enciklopedija* 1970;6:255-256.
  - Novak R. Tuheljske Toplice. *Medicinska enciklopedija* 1970;6:360-361.
  - Novak R. Varaždinske Toplice. *Medicinska enciklopedija* 1970;6:520-521.
  - (Novak R.) Lječilišta, prirodna. *Medicinska enciklopedija* 1974;S1:373-375.
  - Novak R. Mineralne vode. *Medicinska enciklopedija* 1969;4:526-527.
  - Novak R. Mineralne vode. *Medicinska enciklopedija* 1974;S1:417-418.
  - Novak R. Fizikalna svojstva peloida s posebnim osvrtom na muljeve Jadranske obale i otoka. *Zdravstvo* 1981;23(11-12):66-74.
  - pl. Pažić M. *Rječnik nazivlja u turizmu. hrvatski, engleski, njemački, francuski*. Zagreb: Informator. 1998:I-VIII,1-171.
  - Penzar B. i suradnici. *Meteorologija za korisnike*. Zagreb: Školska knjiga, Hrvatsko meteorološko društvo. 1996:1-274.
  - Pleško N. Klimatoterapijske zdravstveno - turističke mogućnosti Republike Hrvatske. *Tourism and hospitality management* 1996;2(2):325-336.
  - Skupnjak B, ed. Referati sa simpozija "Utjecaj prirodnih faktora na čovjeka i njihovo korištenje u liječenju i rehabilitaciji". Zadar, 29-31 January 1981. *Zdravstvo* 1981;23(11-12):1006-1205.



- Štraser T. Thalassoterapija. *Medicinska enciklopedija* 1970;6:208-210.
- Štraser T. Meteorobiologija. *Medicinska enciklopedija* 1969;4:483-485.
- Trauner L. Helioterapija. *Medicinska enciklopedija* 1968;3:85-86.
- Trauner L. Klimatologija. *Medicinska enciklopedija* 1968;3:700-704.
- Vukonić B, Čavlek N, eds. *Rječnik turizma*. Zagreb: Masmedia. 2001:1-536.





# MINERAL SPRINGS AND BATHS IN CROATIA

■ <i>Anina kupelj</i>	Daruvarske toplice
■ <i>Antunova kupelj</i>	Daruvarske toplice
■ <i>Antunovo vrelo</i>	Daruvarske toplice
■ <i>Cattanijevo vrelo</i>	Splitske toplice
■ <i>Dadino vrelo</i>	Tuheljske Toplice
■ <i>Franjevačko vrelo</i>	Splitske toplice
■ <i>Glavno vrelo</i>	Stubičke Toplice
■ <i>Hladno vrelo</i>	Istarske Toplice
■ <i>Ivanova kupelj</i>	Daruvarske toplice
■ <i>Ivanovo vrelo</i>	Daruvarske toplice
■ <i>Ivino vrelo</i>	Jamnička kiselica
■ <i>Izvor svetoga Frane</i>	Splitske toplice
■ <i>Izvor u perivoju</i>	Varaždinske Toplice
■ <i>Jakovljeva kupelj</i>	Krapinske Toplice
■ <i>Janino vrelo</i>	Jamnička kiselica
■ <i>Josipova kupelj</i>	Varaždinske Toplice
■ <i>Južno vrelo</i>	Velika
■ <i>Konstantinova kupelj</i>	Varaždinske Toplice
■ <i>Kupališno vrelo</i>	Splitske toplice
■ <i>Maksimilianeum</i>	Stubičke Toplice
■ <i>Marijina kupelj</i>	Daruvarske toplice
■ <i>Siegenthalova kupelj</i>	Daruvarske toplice
■ <i>Siegenthalovo vrelo</i>	Daruvar
■ <i>Sjeverno vrelo</i>	Velika
■ <i>Strekovačko vrelo</i>	near Karlovac
■ <i>Vrelo Topličica</i>	Topusko
■ <i>Vrelo u bari</i>	Tuheljske Toplice



# FINDING SITES AND/OR PLACES OF USE OF MINERAL AND HEALING WATERS IN CROATIA

- Apatovac
- Babina greda
- Bizovac
- Blizanac
- Bok
- Bokšić 1
- Breznica Đakovačka
- Brubno
- Bučička Slatina
- Bujavica
- Caprag
- Daruvar (Daruvarske toplice)
- Draškovec
- Dravka 1
- Drenovec
- Dubravka
- Dudarove kupke
- Ernestinovo
- Filipan
- Fužine
- Glavnica Donja
- Glavice
- Glogovnica (Glogovničke toplice)
- Gornja Bistra
- Gotalovec
- Harina Zlaka
- Istarske toplice
- Ivanić Grad
- Jamnica (Jamnička kiselica)
- Jezerčica
- Kalac
- Kamena Gorica
- Kamensko
- Kapela
- Karlovac 1
- Karlovac 2
- Katalena
- Klasnić

- Klokun
- Krapinske Toplice
- Kreča Ves
- Križevci
- Križevčanka 1
- Kruševo (Blizanac)
- Kukunjevac
- Kumrovec 1
- Kutnjak 1
- Lasinjska kiselica
- Lešće
- Lipik
- Lunjkovec
- Madarinci
- Migalovci
- Mokošica
- Obradovci
- Orahovica
- Oroslavlje
- Paklenica
- Petrinja
- Podsused 2
- Popović brdo
- Prečec
- Radoboj (Handžova)
- Rogoznica
- Sisačko jedno lječilište
- Slani potok
- Slanje
- Splitske toplice (Split)
- Strekovačko vrelo
- Strugača
- Stubičke Toplice
- Stupnik
- Sutinske toplice
- Sutinsko
- Sveta Helena
- Sveti Ivan Zelina
- Sveti Martin na Muri (Vučkovec)
- Sveti Stjepan (Istarske Toplice)
- Svetojanske toplice
- Šemnica
- Šemničke toplice (Šemnica)
- Šimunovec
- Šmidhenove toplice

- Šumećani
- Taborština
- Tiskovac
- Toplica sv. Jana
- Topličica (Gornji Stenjevec)
- Topličica (Gotalovec)
- Topličica (Kamena Gorica)
- Topličica (Konjšćona)
- Topličica (Oroslavlje)
- Topličica (Svetojanske toplice)
- Topličica (Sveti Ivan Zelina)
- Topusko
- Tuheljske Toplice
- Valpovačke toplice (Bizovac)
- Varaždinske Toplice
- Vela Luka
- Velika
- Velika Ciglena
- Vidnjevići
- Vinkovačko Novo Selo
- Vinkovci - željeznička stanica
- Vratno
- Vrbica
- Vretenica
- Vrlika
- Vučkovečke toplice (Vučkovec)
- Vukovar
- Zagreb - Blato
- Zagreb - Čučerje
- Zagreb - Dubrava
- Zagreb - Mladost
- Zagreb - Šalata
- Zakućac
- Žirovac





# FINDING SITES AND/OR PLACES OF USE OF PELOIDS IN CROATIA

- Daruvar
- Istarske Toplice
- Košćevac (Varaždinske Toplice)
- Našice
- Tuheljske Toplice (Krapinske Toplice)



# FINDING SITES AND/OR PLACES OF USE OF PEATS IN CROATIA

- Crna Rijeka
- Čret
- Vidnjevići



# FINDING SITES AND/OR PLACES OF USE OF MARINE PELOIDS IN CROATIA

- Bistrina (Dubrovnik)
- Blace (Ploče)
- Blato (Pag)
- Istruga (Korčula)
- Kale (Korčula)
- Kampion (Rab)
- Karinsko more (Obrovac)
- Klimno (Krk)
- Lokunja (Pag)
- Lokvišće (Jadranovo)
- Makirina (Pirovac)
- Mir (Dugi island)
- Morinj (Jadrtovac)
- Nin
- Poljud (Split)
- Trpanj (Pelješac)
- Vela Luka (Korčula)
- Zablacé (Šibenik)



# FINDING SITES AND/OR PLACES OF USE OF MARINE REMEDIES IN CROATIA

- Babino polje
- Bakar
- Baška
- Baška voda
- Biograd
- Bol
- Brač
- Brela
- Brijuni
- Brna
- Cavtat
- Cres
- Crikvenica
- Dubrovnik
- Duga uvala
- Goveđari
- Gradac
- Hvar
- Ičići
- Ika
- Jablanac
- Jelsa
- Jesenice
- Kampur
- Karin
- Karlobag
- Kaštel Lukšić
- Kaštel Novi
- Kaštel Stari
- Kaštel Štafilić
- Koločep
- Komiža
- Korčula
- Kraljevica
- Krilo
- Krk
- Kupari
- Lokrum



- Lopar
- Lopud
- Lošinj
- Lovran
- Lumbarda
- Makarska
- Mali Lošinj
- Malinska
- Milna
- Mlini
- Mljet
- Nin
- Novalja
- Novi Vinodolski
- Njivice
- Omiš
- Omišalj
- Opatija
- Orebić
- Pag
- Podgora
- Punat
- Rab
- Rovinj
- Savudrija
- Selce
- Senj
- Silba
- Slano
- Smokvica (Korčula)
- Soline
- Split
- Srebreno
- Stari grad
- Supetar
- Susak
- Sutivan
- Šibenik
- Šipan
- Tiskovac
- Tisno
- Trogir
- Trpanj
- Trstenik
- Ugljan

- Vela Luka
- Veli Lošinj
- Vis
- Vrbnik
- Vrboska
- Zabraće
- Župa Dubrovačka



# **FINDING SITES AND/OR PLACES OF USE OF CLIMATIC (MOUNTAIN) REMEDIES IN CROATIA**

- Baške Oštarije
- Brestovac
- Brod Moravice
- Brod na Kupi
- Delnice
- Donji Lapac
- Fužine
- Gorski kotar
- Lika
- Novi Marof
- Plitvička jezera
- Skrad
- Strmac-Šumetlica



# CROATIAN BALNEOLOGISTS

- Jozo Budak
- Mirko Czukor
- Radovan Čepelak
- Vladimir Franković
- Branimir Haramustek
- Goran Ivanišević
- Ana Jakša
- Stanko Jurdana
- Marcel Majsec Sr.
- Veljko Mandić
- Stanko Miholić
- Renata Novak
- Đuro Pintač
- Čedomil Plavšić
- Nada Pleško
- Oskar Plevko
- Jaroslav Rolinc
- Berislav Skupnjak
- Leo Trauner
- Vale Vouk
- Branko Vukelić



# CROATIAN BALNEOLOGIC PUBLICATIONS

- Balneoklimatologija
- Godišnjak Balneološko-klimatološkog instituta NR Hrvatske
- Klimatske promjene i njihov utjecaj na zdravlje
- Lječilišta, zdravlje, stres
- Mineralne i termalne vode SR Hrvatske
- Morski ljekoviti činitelji u Hrvatskoj
- Odabrana poglavlja iz balneologije
- O klimatoterapiji našega mora
- Opatija - promotor zdravstvenog turizma
- Pojmovnik balneoklimatologije i prirodnih ljekovitih činitelja u Hrvatskoj
- Prirodni ljekoviti činitelji u Hrvatskoj
- Prirodni ljekoviti činitelji u promicanju zdravlja čovjeka u 21. stoljeću
- Toplički ljekoviti činitelji u Hrvatskoj
- Zdravlje - kvaliteta života
- Zdravstveni i lječilišni turizam: metode i programi
- Zdravstveni turizam i Akademija medicinskih znanosti Hrvatske
- Zdravstveni turizam i prirodni ljekoviti činitelji
- Zdravstveni turizam i vrednovanje prirodnih ljekovitih činitelja
- Zdravstveni turizam, prehrana, kretanje i zaštita okoliša u Hrvatskoj
- Zdravstveni turizam u Hrvatskoj
- Zdravstveni turizam za 21. stoljeće





# **CROATIAN BALNEOLOGIC INSTITUTIONS**

- Balneološki laboratorij
- Balneološko-klimatološki institut
- Hrvatsko društvo za balneoklimatologiju i prirodne ljekovite činitelje
- International Society for Medical Hydrology
- Referentni centar za zdravstveni turizam i medicinski programirani odmor
- Odbor za zdravstveni turizam
- Odbor za zdravstveni turizam i prirodne ljekovite činitelje
- Odjel za balneoklimatologiju
- Odjel za balneologiju i fizikalnu terapiju
- Odsjek za kupališna i rudna vrela
- Ordinarijat za balneoklimatologiju
- Savjet za zdravstveni turizam
- Sekcija za balneoterapiju
- Sekcija za reumatologiju, fizikalnu medicinu i balneoklimatologiju
- Sekcija za talasoterapiju
- Stalni balneološki savjet Banovine Hrvatske
- Zavod za balneoklimatologiju i fizikalnu terapiju
- Zavod za fizikalnu medicinu i rehabilitaciju



## SUMMARY

The basic balneologic terms, and nearly all finding sites and places of use of natural remedies in Croatia (220) are presented. The prominent Croatian balneologists of 20th century and important Croatian publications are presented, together with used references. The appendix contains the lists of springs and baths, finding sites and places of use of thermomineral waters, peloids, peats, marine peloids, marine and climatic remedies, balneologists, balneologic publications and organizations, as well as the summary in Croatian and English languages.

**Key words:** *natural health resorts, Croatia*



# SAŽETAK

U knjizi su abecednim redom prikazani osnovni balneološki pojmovi, gotovo sva nalazišta i mjesta primjene prirodnih ljekovitih činitelja u Hrvatskoj (220). Uvršteni su i istaknuti hrvatski balneoklimatolozi dvadesetoga stoljeća, kao i značajnija izdanja. Dat je popis korištene literature. U prilogu slijede popisi vrela i kupelji, nalazišta i/ili mjesta primjene mineralnih i ljekovitih voda, peloida, tresetne zemlje, morskih peloida, morskih ljekovitih činitelja, klimatskih (planinskih) ljekovitih činitelja, balneologa, balneoloških izdanja i organizacija, kao i sažetak na hrvatskom i engleskom jeziku.

**Ključne riječi:** *prirodna lječilišta, Hrvatska*



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Born in Zagreb in 1948. Educated in Zagreb, postgraduate study in rheumatology in 1987, master's degree in 1992 with thesis "Evaluation of inflammatory rheumatic diseases in Croatia". Lecturer at the Faculty of Medicine of the University in Zagreb since 1985. In 1997 revived university balneoclimatology lectures in *Zavod za fizikalnu medicinu i rehabilitaciju* in Zagreb, Demetrova 18. From 1975 to 1984 worked in Special Hospital for Medical Rehabilitation in Varaždinske Toplice, from 1984 in Clinical Hospital Center Zagreb. President of the Committee for Health Tourism and Natural Remedies of the Croatian Academy of Medical Sciences since 1999. Organized eleven scientific symposia and was redactor of proceedings 2000-2007: *Prirodni ljekoviti činitelji u Hrvatskoj*, *Morski ljekoviti činitelji u Hrvatskoj*, *Toplički ljekoviti činitelji u Hrvatskoj*, *Zdravstveni turizam u Hrvatskoj*, *Klimatske promjene i njihov utjecaj na zdravlje* (with Berislav Skupnjak and Branimir Čvorišćec), *Prirodni ljekoviti činitelji u promicanju zdravlja čovjeka u 21. stoljeću* (with Silva Potrebica), *Zdravstveni turizam i vrednovanje prirodnih ljekovitih činitelja*, *Zdravstveni turizam i prirodni ljekoviti činitelji*, *Zdravstveni turizam, prehrana, kretanje i zaštita okoliša u Hrvatskoj*, *Zdravstveni i lječilišni turizam: metode i programi*, *Zdravlje - kvaliteta života* and *Lječilišta, zdravlje, stres*. Author of three books published by the Academy: *Pojmovnik balneoklimatologije i prirodnih ljekovitih činitelja u Hrvatskoj* in 2001, *Zdravstveni turizam i Akademija medicinskih znanosti Hrvatske* in 2003 and *Pojmovnik hrvatskog balneološkog nazivlja* in 2006. Co-author of the health tourism development project in Mali Lošinj and Veli Lošinj in 1998. Author of 13 expertises on the use of mineral waters and peloids in medicine. Contributor of *Leksikografski zavod Miroslav Krleža* on the following publications: *Hrvatska enciklopedija*, *Enciklopedijski rječnik humanog i veterinarskog medicinskog nazivlja*. Published books: with P. Keros *Zdravstveni turizam 1997*, *Dječja bolnica (sanatorij) i prirodni ljekoviti činitelji u Velomu Lošinj* 1999, with Theodor Dürriegl *Reumatologija u Hrvatskoj* 2005, and 36 chapters in various books. Editor in chief of the journal *Reumatizam* since 1999. From 2001 until 2008 editor of: *Kodeks medicinske etike i deontologije HLZ-a*, *Bioetička edukacija medicinar* (with I. Šegota), *Prava djeteta kao pacijenta*, *Suradnja liječnika i farmaceutske industrije u trajnoj izobrazbi* (with I. Bakran), *Liječenje vodom: pristupi i paradoksi* (with Stella Fatović-Ferenčić), *Liječnik i javnost* (with I. Bakran), *Fizikalna i rehabilitacijska medicina* (B. Čurković et al.), *Bolesnik: prava i obveze* (with I. Bakran), B. Špišić *Kako pomažemo našim invalidima* (with Stella Fatović-Ferenčić), *Hrvatsko zdravstvo u tranziciji* (with I. Bakran), *Dr. Ana Jakša - prijatelj djece*, *Theodor Dürriegl: sjećanja, biografija, bibliografija*, *Liječnička tajna*. In Croatian Medical Association the president of the *Committee for medical ethics and deontology* and *Croatian society for balneoclimatology and natural remedies*. Member of *EULAR* and the president of *Committee for Balneoclimatology* of the



*International League of Humanists* since 2003. The winner of *Zahvalnica, Diploma, Povelja* and *Ladislav Rakovac award* of HLZ, *Liječnik godine* of the International League of Humanists 2001, honorary member of the Croatian Academy of Medical Sciences since 2004. In 2005 chosen as Croatian representative among 65 *Caring Physicians of the World* by the World Medical Association.



## **Goran Ivanišević, M.D.**

is a Croatian physiatrist, rheumatologist and balneologist, the president of the Committee for Health Tourism and Natural Remedies of the Croatian Academy of Medical Sciences. He organized numerous scientific symposia on natural remedies, health tourism and health care in Croatia. In 2005 he was chosen as the Croatian representative among 65 Caring Physicians of the World by the World Medical Association.

**Croatia** is rich in finding sites and places of use of natural spa, marine and climatic remedies. Nearly all of them - more than 220 - are presented in book. The basic balneologic terms, the prominent Croatian balneologists of 20th century and important Croatian publications are presented too. In appendix there are lists of springs and baths, finding sites and places of use of thermomineral waters, peloids, peats, marine peloids, marine remedies, climatic remedies, balneologists, balneologic publications and organizations.



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