

# ICOS Switzerland

§ one atmospheric station, one ecosystem station



Jungfrauoch (class 1)



Davos

§ ICOS-CH officially started in July 2013

§ funding is secured for two years

ICOS Monitoring Station Assembly, Paris, November 13 – 14, 2013

# ICOS Switzerland – Jungfrauoch

§ Mountain station, 3580 m asl



ICOS Monitoring Station Assembly, Paris, November 13 – 14, 2013

# ICOS Switzerland – Jungfrauoch

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Category	Gases, continuous ü ü ü	Gases, periodical ü ü ü ü ü ü	Meteorology, continuous	Eddy Fluxes
<b>Class 1</b> Mandatory parameters	<ul style="list-style-type: none"> <li>• CO<sub>2</sub>, CH<sub>4</sub>, CO : at each sampling height</li> </ul>	<ul style="list-style-type: none"> <li>• CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, SF<sub>6</sub>, CO, H<sub>2</sub>, <sup>13</sup>C and <sup>18</sup>O in CO<sub>2</sub>: weekly sampled at highest sampling height</li> <li>• <sup>14</sup>C (radiocarbon integrated samples): at highest sampling height ü</li> </ul>	<ul style="list-style-type: none"> <li>• Air temperature, relative humidity, wind direction, wind speed: at highest and lowest sampling height* ü</li> <li>• Atmospheric Pressure ü</li> <li>• Planetary Boundary Layer Height** planned</li> </ul>	
<b>Class 2</b> Mandatory parameters	<ul style="list-style-type: none"> <li>• CO<sub>2</sub>, CH<sub>4</sub> : at each sampling height</li> </ul>	---	<ul style="list-style-type: none"> <li>• Air temperature, relative humidity, wind direction, wind speed: at highest and lowest sampling height*</li> <li>• Atmospheric Pressure</li> </ul>	
<b>Recommended parameters***</b>	<ul style="list-style-type: none"> <li>• <sup>222</sup>Rn, N<sub>2</sub>O, O<sub>2</sub>/N<sub>2</sub> ratio ü ü ü</li> <li>• CO for Class 2 stations</li> </ul>	<ul style="list-style-type: none"> <li>• CH<sub>4</sub> stable isotopes, O<sub>2</sub>/N<sub>2</sub> ratio for Class 1 stations: weekly sampled at highest sampling height</li> </ul>		<ul style="list-style-type: none"> <li>• CO<sub>2</sub> : at one sampling height</li> </ul>

**<sup>13</sup>C and <sup>18</sup>O in CO<sub>2</sub>, continuous (hourly)**

\* Atmospheric temperature and relative humidity recommended at all sampling heights  
 \*\* Only required for continental stations.  
 \*\*\* Recommended for its scientific value but support from ATC in terms of protocols, data base, spare analyzer will not be ensured as long as the parameters are not mandatory.

Table 2: ICOS AS parameter set

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# ICOS Switzerland – Jungfrauoch

Brand	Model	Species	ICOS Status				Eligibility Condition
			CO <sub>2</sub>	CH <sub>4</sub>	CO	N <sub>2</sub> O	
PICARRO	G1301	CO <sub>2</sub> /CH <sub>4</sub> /H <sub>2</sub> O	•	•	-	-	With ICOS specification
PICARRO	G2301	CO <sub>2</sub> /CH <sub>4</sub> /H <sub>2</sub> O	•	•	-	-	
PICARRO	G2401	CO <sub>2</sub> /CH <sub>4</sub> /CO/H <sub>2</sub> O	•	•	•	-	
PICARRO	G5105	N <sub>2</sub> O/H <sub>2</sub> O	-	-	-	T	
LGR	GGA-24 EP	CO <sub>2</sub> /CH <sub>4</sub> /H <sub>2</sub> O	x	x	-	-	Precaution with Δ temperature
LGR	907-0015	CO/N <sub>2</sub> O/H <sub>2</sub> O	-	-	•	T	
LGR	913-0015 (EP)	CO/N <sub>2</sub> O/H <sub>2</sub> O	-	-	•	T	

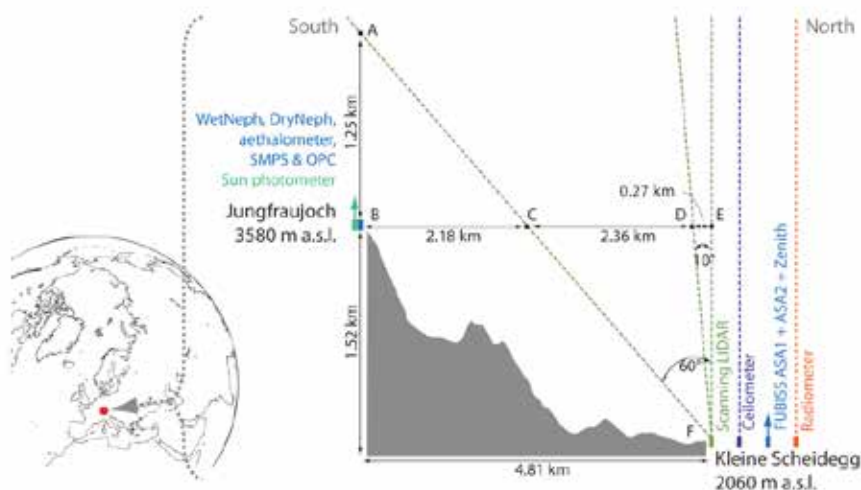
• : ICOS Compliant    x : Not ICOS Compliant    T : Test in Progress    - : Not applicable

Table 4: list of continuous gas analyzers selected for ICOS (as of March 2013)

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# Next steps – Jungfraujoch

- § set up of NRT data transfer to ATC
- § upgrade of flask sampling capabilities
- § acquisition of a PBL height retrieval instrument



Zieger et al., ACP, 2010

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