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Water vapor filters

Question: Is the new location of channel 1⁹ (940±25 nm) acceptable?

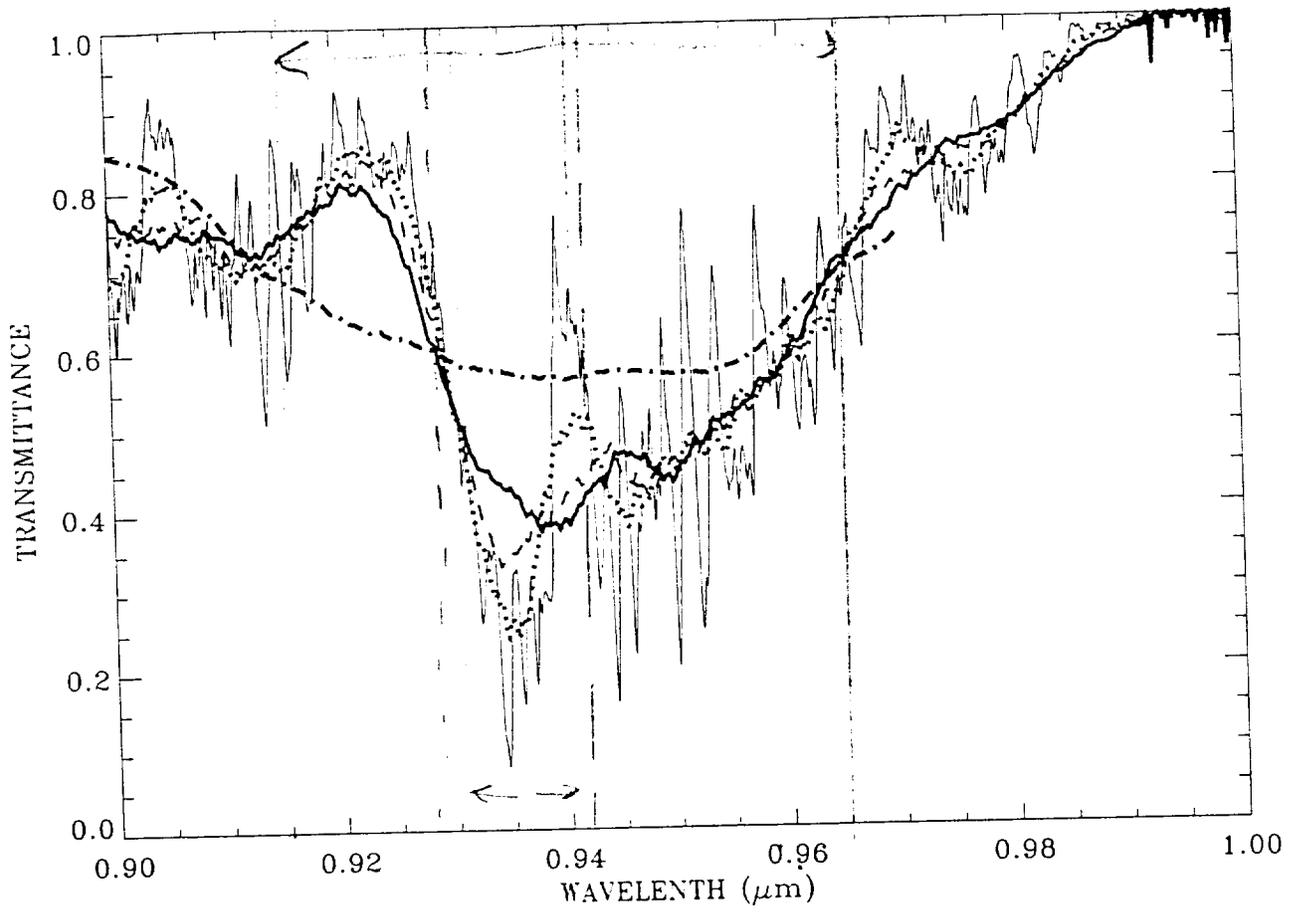
Answer: If the position will remain the same in space than Yes

If in space will be shifted by 5 ± 3 nm than the remote sensing error will increase substantially and the answer is probably no. We planned to have an error of 5% in the retrievals. Part of the error will translate to systematic error in the retrieval and part non systematic increasing the residual error to 7-9%.

Central wavelength (nm)	transmission (US std. 1.4 cm water 60 view)	Error in Transmission due to a shift of 3 nm to shorter wavelength	error/signal in %	
945	0.562	0.001	0.2	
Original	940	0.56	0.003	0.7
new	935	0.571	0.004	0.9
If shifted by 5 nm	930	0.585	0.026	6.3

Question: What do we do with channel 1⁸ (936±5 nm)

Answer: - If we can produce narrow channel with width of 7 ± 2 nm than lets do it. We can give up signal to noise on it. Presently it is 57 for $L=3.6$ with $L_{max}=256$. If L_{typ} is more like 12 than we have a factor of 2-4 to use.



US Standard Atmosphere (ZA=60)

