

A non expensive tool to diagnose pigments used in wall painting.



# The needed components to have a working system: (F.O.R.S)



Spectrometer

## Exemplar® LS

Low Straylight Smart CCD Spectrometer

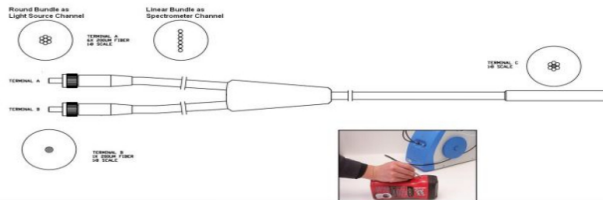


The Exmp  
by utilizing  
data proce:  
The Exemp  
ultra-low tr  
a 2048 eler  
MHz reado

The Exemp  
wavelength  
(900nm/21

Spectrometer Accessory

## FRP Series Fiber Reflectance Probes



A fiber reflectance probe, such as the FRP series combines optical fibers at the sample end with the bundle bifurcated into two channels for connection to a light source and a spectrometer.

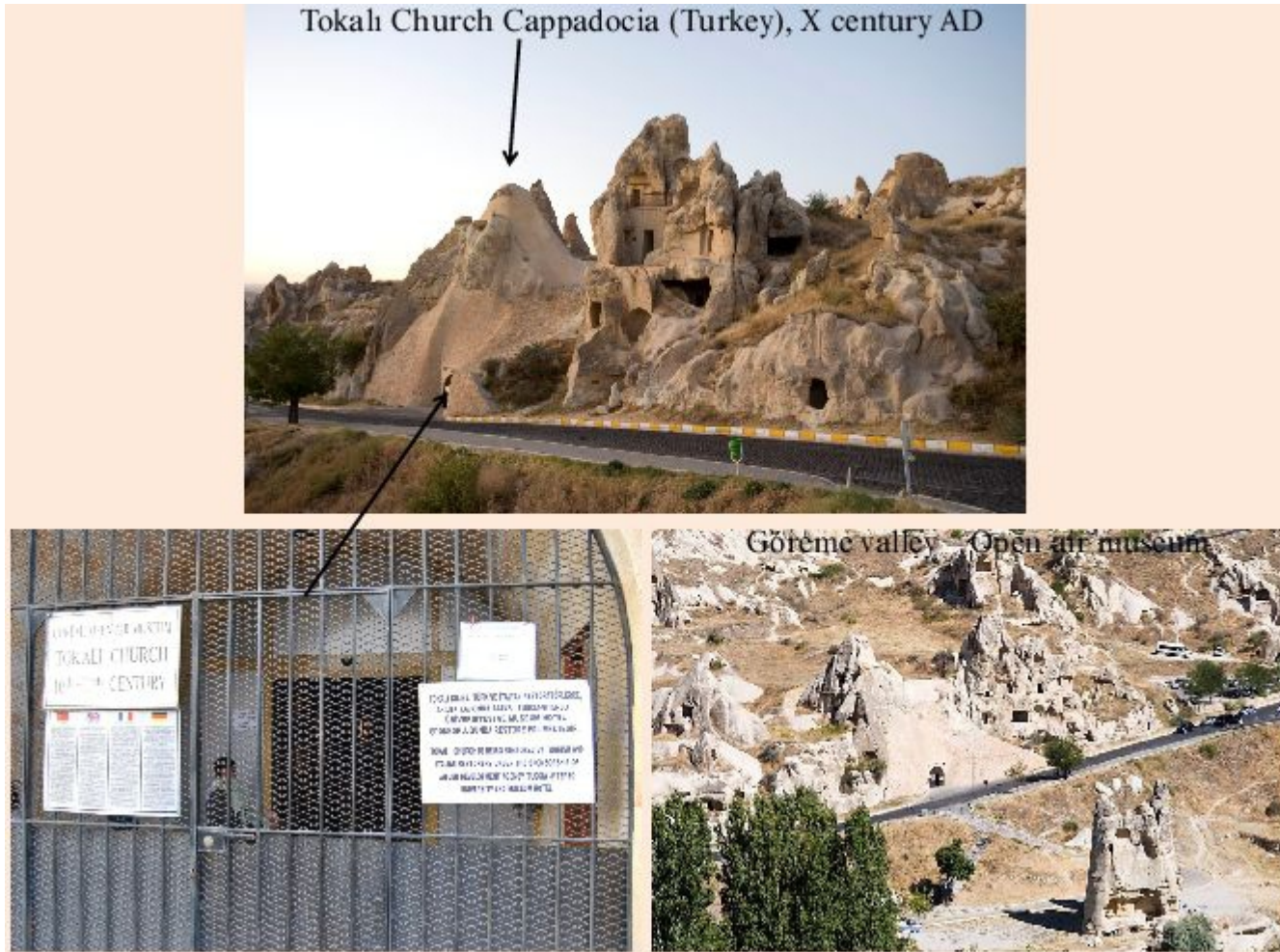
A fiber optic reflectance probe can measure either diffuse or specular reflectance from surfaces. When positioned at an angle to the surface normal, it measures diffuse



## Where it was used:

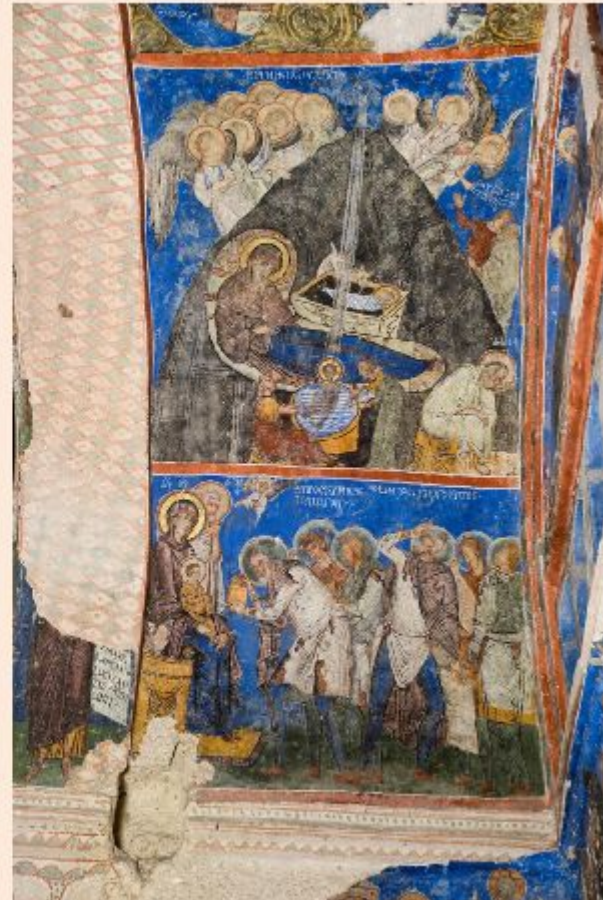


## The location:



## The location:

Tokalı Church Cappadocia (Turkey), X century AD. The wall paintings



# The measurements:

Tokali Church Cappadocia (Turkey), X century AD.  
Measurements with Quest™ CCD Array micro-spectrometer  
BWTEK Inc.



ARKEOLOJİK İŞBİRLİĞİ PROJESİ  
ARKEOLOJİK MÜZEM HİZMETLERİ  
BİRİNCİ TÜRKİYE-İTALYA ARKEOLOJİK İŞBİRLİĞİ PROJESİ  
MÜZEM HİZMETLERİ

İTALYA-İTALYAN ARKEOLOJİK PROJESİ  
UNIVERSITY OF TRENTO - TOKALI PROJECT  
ARKEOLOJİK İŞBİRLİĞİ PROJESİ  
MÜZEM HİZMETLERİ  
MADAtec

01  
02  
03  
04  
05  
06  
07  
08  
09  
10