

FIELDWORK

PHOTOGRAPHIC TECHNIQUES

WORKSHOP

COURSE DESCRIPTION

This workshop shows several processes that are useful for the investigator-photographer in his fieldwork. It begins by reviewing photographic equipment currently available and its use. Then it offers some general photographic techniques, recommendations on field photography, and later processing and storage of prints and film. The workshop concludes with instructions on special photographs: PANORAMIC PHOTOS with static and mobile targets, STEREOSCOPIC PHOTOS, DOUBLE-PHOTOS, and SEQUENTIAL PHOTOS. There is a special section with guidelines for the near-sighted field investigator. Practical exercises using photographs taken by the author enhance the methods presented. During a short field trip, students shoot several types of photographs to apply the techniques taught during the workshop. All techniques shown in the workshop may also be applied to digital photography.

These techniques are useful for field work in the exploration of mineral deposits, engineering works' site evaluations, geological and geotechnical cartography, studies on the excavation of open pits, environmental engineering, engineering geology, archaeology, architecture and natural hazard evaluation, among other disciplines.

CONTENTS Contents and introduction of the workshop's handbook are on next page.

ORGANIZATION AND LOGISTICS The eight-hour workshop is set up in four sessions, as indicated on the following table.

SESSIONS OF THE WORKSHOP

	LENGTH	SETTING	EQUIPMENT
1	1 hour	Auditorium	Video-beam (computer) projector, microphone (for large audience), workshop handbook
2	3 hours	Open air, open pit or similar excavation (if possible)	Individual photographic camera (brought by each student), 36-shot paper film for each student, field instructions, workshop handbook
3	2 hours	Room with working space for each student, good light for drawing	Photographs provided by instructor, scissors, pocket stereoscope, scotch tape, bar glue, lab instructions, workshop handbook
4	2 hours	Room with working space for each student, good light for drawing	Photographs shot by students, paper, scissors, pocket stereoscope, scotch tape, bar glue, lab instructions, workshop handbook

The workshop's First Session offers the theoretical portion and requires a projection room with blinds and both video-beam and overhead projectors.

The Second Session needs an open space to shoot daylight field photographs. Visiting an open pit would be very appropriate, but in case that is not possible, going out in a university campus or safe nearby park will serve just as well. Students will shoot photos

during three hours, to practice the techniques learned, according to special instructions. The film will be developed and printed on paper for the fourth session.

On the Third Session students practice using photographic material in color photocopies and carry out several exercises by following special instructions. A well-lighted room with tables for individual work is required. A classroom will work fine if tables allow for sufficient elbowroom and drafting space.

The Fourth Session of the workshop will enable students to work with their own photographs, shot during the second session. It is taught in same room as the third session.

DURATION Good coordination enables all the workshop to be offered on a single day. Some alternatives could be: taking the first three sessions in the morning, and the last one during the late evening; two sessions in the morning and the rest, the next morning; or two sessions in the morning and the rest in the afternoon of the same day.

A recess is needed after the second session to develop the rolls of film shot by the students. This has to be programmed with the photographic laboratory in anticipation. The services of a messenger, to take films to the lab and printed photographs back to the site of the workshop, will enable the workshop to run smoothly. Session 3 takes one hour and a half, (plus half an hour to solve questions and discuss individual work), which added to the recess is enough time for color films to be developed. If that can be organized well, the whole workshop may be given in a single day. This alternative has proven best over the years, for continuity aids in the learning process. Saturdays are ideal for working men and women to attend the workshop.

MATERIAL Materials of the workshop are composed of: a 36-exposure 35 mm color film (100 ASA) for paper copies, the corresponding development, a plastic stereoscope, three sheets of white bond paper, scissors*, an alcohol-based bar glue*, Scotch tape* (a set of marked materials between each two students is enough, and they may be used again for other workshops). Local photo shops normally are willing to offer discounts and/or free film/development for the members of the workshop in exchange for a small advertisement of their services, and this has to be considered.

Plastic stereoscopes must be imported from the U.S.A. They will be purchased from a special supply house, and take approximately two weeks to be shipped in.

The workshop's handbook has 18 black and white, A-4 sheets, including a front page that must be photocopied. There are also five sheets in full color, which must be reproduced in color photocopies. Each handbook has to be bound in cardboard with wire loops.

As an alternative, the author can provide all the necessary material. If needed, students can receive a certificate for the workshop, in appropriate stationery.

INSTRUCTOR AND LANGUAGE The workshop will be given in English by Geologist Alberto Lobo-Guerrero Sanz. Inquiries from students may be solved both in English and Spanish.

COST* For an example, below is a list of the unitary costs in rands of all material needed for the workshop as described on this page. Prices may vary depending on the city.

1. Roll of film + photographic development (cost per volume)	58.5
2. Plastic pocket stereoscope	65
3. Odd tools (scissors, bar glue, Scotch tape, paper, x-acto cutter)	6.5
4. Handbook for the workshop (photocopies, binding, plastic covers)	58.5
SUBTOTAL	188.5

Costs of film and photographic development will be paid in bulk by the organizers of the workshop, and may be substantially lower than indicated. Additionally a messenger is required to take all the rolls of exposed film, to the laboratory for development and to bring them back to the workshop site once paper prints are ready.

To offer the workshop, we will charge an after-tax amount of three thousand three hundred South African rands (R \$3,300), to pay for fees and other costs. In this way, depending on the number of participants, the per capita estimated cost of the workshop would be as indicated on the table below. All costs must be updated, but this gives an idea.

Individual Cost of Workshop

persons	Cost/p	no stereo	Digital
20	353.5	288.5	230
30	298.5	233.5	175
40	271	206	147.5

persons	Cost/p	no stereo	Digital
50	254.5	189.5	131
60	243	178.5	119.5
70	235.64	170.64	112.14

Costs of rooms and advertising the event are not included. It is preferable for the workshop to be as inexpensive as possible, to allow for massive participation. If the workshop is given outside of Johannesburg, there will be an additional surcharge for lodging and transportation.

An alternative cost option without plastic stereoscopes is available. In that case all fees are sixty-five rands less per capita, as shown above. Participants who bring a digital camera and print out their own color photos can pay 123.5 rands less, as shown above.

CONTRACT AND FORM OF PAYMENT A letter accepting this proposal serves as contract. Thirty percent of the workshop's value must be paid at least a week before starting the first session. The rest of the money to account for fees, and fixed and variable costs of materials must be paid in cash once the workshop ends. If stereoscopes are needed, they should be ordered and paid at least three weeks before the workshop begins. This is necessary for the stereoscopes to arrive on time.

INTRODUCTION OF THE WORKSHOP'S HANDBOOK

An investigator goes to the field carrying a notebook, compass, GPS, hand lens, pocket knife, hat, lunch, canteen, some additional equipment and a PHOTOGRAPHIC CAMERA. If this last item is cumbersome, it will probably not be carried, and fieldwork quality might diminish. Photographs are an invaluable aid in the work of a field investigator, and this workshop offers some techniques that may contribute to their efficient application.

Photography allows the investigator to reproduce a landscape precisely, with intricate detail. After taking initial field notes, with schematic figures, a photograph enables the investigator to describe his observations with greater precision. Careful analysis of the photographs at the office, brings to life numerous details, that were not observed on site.

The relatively low cost of cameras, film and development spurred a rebirth of photography during the last two decades. Modern advances miniaturized the size of equipment, and at the same time increased their quality and versatility, making photography a useful tool for many professions, among which are mining engineering, geology, civil engineering, biology, archaeology and architecture.

This workshop guides on photographic equipment available in the market, and informs on general photographic techniques to use "auto-focus" cameras. It then presents suggestions for the near-sighted investigator. Recommendations on how to shoot field photographs, including topics such as illumination, back-drop and reference scales come next; there are cautions relating to factors such as humidity, vibrations, extreme temperatures and dust. The following chapter contains suggestions on processing and storing of photos during office work. Next come guidelines on special fieldwork photographs, such as PANORAMIC PHOTOGRAPHS with fixed and mobile objectives, STEREOSCOPIC PHOTOS, DOUBLE-PHOTOS, SEQUENTIAL PHOTOS and GUIDED PHOTOS. The workshop finally gives tips on interaction with the photographic lab.

Some techniques presented during the workshop are old but little known. Others have been invented progressively, even though they are not exclusive discovery of the author. They are observations, product of using common sense during fieldwork in diverse areas of applied geology.

CONTENTS OF THE WORKSHOP'S HANDBOOK

1 ABSTRACT, RESUMEN	5 SPECIAL TECHNIQUES
2 INTRODUCTION	PANORAMIC PHOTOS
3 GENERAL ISSUES	With Fixed Objective
TYPES OF CAMERAS	With Moving Objective
ADDITIONAL EQUIPMENT	Mounting Panoramic Photos
4 PHOTOGRAPHIC TECHNIQUES	STEREOSCOPIC PHOTOS
GENERAL TECHNIQUES	Methodology
FIELD TECHNIQUES	Additional Suggestions
Illumination	DOUBLE-PHOTO (LOCATION-DETAIL)
Background	With Simple Photos
Scale of Reference	With Aerial Photos
Tagging and Numbering Photos	SEQUENTIAL PHOTOS
Development of Film	Introduction
Cautions	Procedure
Humidity	6 TECHNIQUES FOR NEAR-SIGHTED
Vibration	7 INTERACTION WITH PHOTO LAB
Extreme Temperatures	8 CONCLUSIONS
Dust	
Replacements	WORKSHOP PRACTICAL EXERCISES
Customs Checks	INSTRUCTIONS FOR FIELDTRIP
Other Observations	INSTRUCTIONS FOR WORKSHOP 1
OFFICE TECHNIQUES	INSTRUCTIONS FOR WORKSHOP 2

Additional information on the workshop: LOGEMIN S.A.
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